

PLANNING FOR SUSTAINABLE DEVELOPMENT IN FIELDS CORNER

PHASE I: EXISTING CONDITIONS REPORT



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INTRODUCTION

The Project

This project is part of a course entitled “Sustainable Development Planning & Practice” (11.947 - Spring 2004) at the Massachusetts Institute of Technology. The goals of the class are to have students work with Viet-AID in developing a sustainable development plan for Fields Corner.

What is Sustainable Development?

Balancing current development between economic, social and environmental principles in ways that benefit society now and in the future Consideration of impacts that traditional actions have on:

- Lasting economic development
- Resources (reduce, reuse, recycle)
- Social equity/fairness

Purpose of the Existing Conditions Analysis

To analyze the neighborhood of Fields Corner from four perspectives:

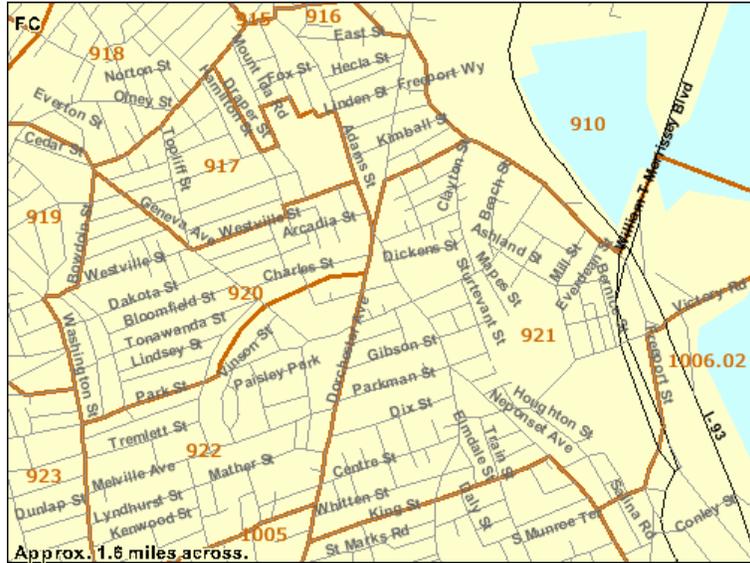
1. Demographics
2. Environmental Conditions
3. Industry Activity
4. Commercial Activity

Through this preliminary analysis, we hope to identify potential sustainable development goals, strategies, and next steps in collaboration with Viet-AID.

DEMOGRAPHIC CONDITIONS: FIELDS CORNER

The following section describes the demographic profile of Fields Corner neighborhood of South Dorchester, Boston. The source for the data is the US Census of 1990 and 2000 for census tracts 916, 917, 920, 921, and 922. This section provides an analysis of the age, race and income characteristics.

This area is serviced by the Fields Corner ‘T’ stop on the Red Line, located west of Dorchester Avenue near Park street. Three MBTA bus routes, 17, 19 and 20, provide transportation from Fields Corner to Andrews Station, Ruggles Station and Neponset respectively. Dorchester Avenue houses one of South Dorchester’s largest business districts. The rest of the area is predominantly residential.



Population

During the period from 1990 to 2000, the population of Fields Corner grew by over 12%. As shown in Table 1, there was a 6.7% increase in the number of households, though the average household size decreased marginally. During this period, the population of Boston grew by 2.6% and the number of households increased by 4.8%.

Table 1: General Population of Fields Corner

	2000	% Change 1990 to 2000
Population	22,672	12.50
Percent Female	51.70	12.30
Percent Male	48.30	12.70
Total Households	7,034	6.70
Average Household Size	3.22	-1.00
Family Population	19,309	20.80

Source: U.S. Bureau of the Census, Census 2000

The increase in population has not been uniform across racial categories, as shown in Table 2. In Fields Corner, the largest increase was in the Asian population (190%), while the White population registered a significant decrease of over 40%. During this decade, the White population in Boston decreased by 11%, while that of Blacks increased marginally by 1.5%. Asians were also the fastest growing ethnic group in Boston, registering an increase of 47% and comprised 8% of the city’s population in 2000. Within the Asian community, the fastest growing ethnic group was the Vietnamese (4,754 to

10,818), representing a change of 127%. In 2000, the city’s Vietnamese population stood at 11,000, of which around 8,000 were located in South Dorchester.

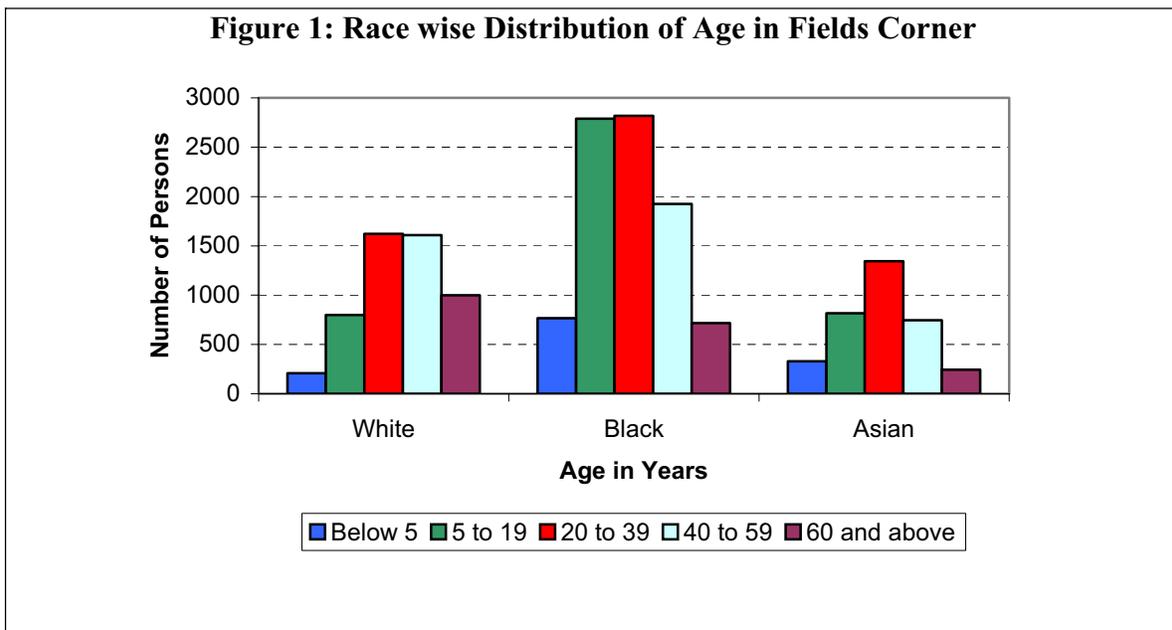
Race	2000	% Of current population	% Change 1990 to 2000
White	5,267	23.23	-43.30
Black	9,527	42.02	27.80
Asian	3,468	15.25	190.20
Hispanic	3,078	12.75	3.90
Other	2,669	11.05	26.40

Source: U.S. Bureau of the Census, Census 2000

In 2000, the three major racial categories in Fields Corner in order of numerical strength were Black, White and Asian. Among the Asians, Vietnamese comprise the largest ethnic group in Fields Corner, with a population of around 3,100.

Age Distribution

The largest age group in Fields Corner is the 20-39 year age cohort. Figure 1 shows the age distribution for various races. It is evident that the White population has a majority of individuals in the 20 and 60-year range, whereas the Black population has most individuals between 5 and 40 years. In comparison, the age distribution in the Asian community is more symmetric, where the age interval of 20-39 years comprises the single largest group.



Source: U.S. Bureau of the Census, Census 2000

Income

During this decade of 1990 to 2000, the area of Fields Corner has prospered, as seen by the rise in median household income and per capita income. Yet, as shown in Table 3, the growth is not as much as in the Boston area, especially in terms of per capita income.

	Fields Corner		Boston	
	2000	% Change 1990 to 2000	2000	% Change 1990 to 2000
Median Household Income	\$39,722	27.30	\$39,666	35.10
Average Household Income	\$47,903	25.20	\$55,882	43.10
Per Capita Income	\$14,907	19.20	\$22,716	50.90

Source: U.S. Bureau of the Census, Census 2000

Looking at the distribution of income across racial categories, it is evident that a greater percentage of Asians fall below poverty level. Table 4 shows that close to a quarter of the Asian population are below the poverty line. In comparison, the average percentage of population below the poverty line was 19.5% in Boston and 17.3% in South Dorchester.

	% Below Poverty Level	Above Poverty Level
White	13.88	86.12
Black	15.21	84.79
Asian	22.38	77.62

Source: U.S. Bureau of the Census, Census 2000

However, as shown in Table 5, the percentage of Asians households earning less than \$10,000 is less than 11%. Over 50 percent of the Asian households earn more than \$30,000 per annum. Thus, the high percentage of Asian individuals falling below the poverty level may include individuals in larger households where per capita income is proportionally reduced.

	Less than \$10,000	\$10,000 to \$29,999	\$30,000 to \$59,999	\$60,000 and above
White	12.24	19.71	35.73	32.33
Black	12.34	26.53	36.24	24.89
Asian	10.75	24.78	42.60	21.87

Source: U.S. Bureau of the Census, Census 2000

Housing

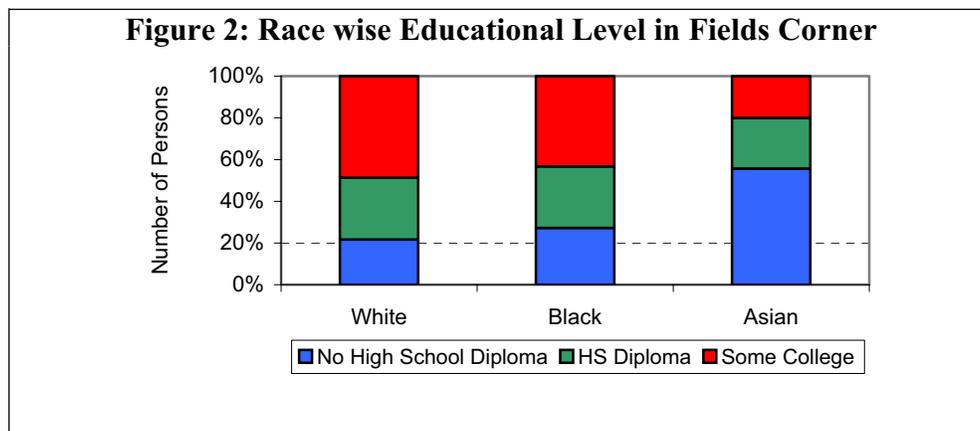
One measure of household wealth is house ownership. As shown in Table 6, there are no major differences in the various non-White racial categories in terms of owner occupied housing, where roughly one third of the households own the property they occupy. This is comparable for the general Boston area, where 32% of the housing is owner occupied. The Median Cash Rent for occupied rental units in 2000 in Fields Corner was \$ 654, while that for Boston was \$802 and for South Dorchester was \$787. The Median Housing Value for owner occupied housing in this neighborhood was \$192,890, and a total of 9 homes were valued at \$500,000 or more.

	Owner Occupied	Renter Occupied
White	43.10	56.90
Black	33.26	66.74
Asian	33.51	66.49
Other	31.29	68.71

Source: U.S. Bureau of the Census, Census 2000

Educational Characteristics

Figure 2 shows the educational levels of people in Fields Corner older than 25 years. A detailed breakup is given in Table A1 in Appendix 1. The differences between the races in terms of educational achievement are significant, with over 50% of the Asian population having less than a high school education and less than 20% with any college education at all. In Boston, the percentage of people holding a high school diploma or higher is 78%.



Source: U.S. Bureau of the Census, Census 2000

One reason for the low educational achievement of the Asian population in Fields Corner could be their limited proficiency with English. Table 7 shows that around 11% of the people cannot speak the language at all and 31% have a limited ability to converse in English.

Table 7: Proficiency of Asians in Fields Corner in English

Ability to speak in English	(%)
Not At All	11.33
Not Well	31.29
Well	34.23
Very Well	23.15

Source: U.S. Bureau of the Census, Census 2000

Employment

In 2000, Fields Corner had 9,872 people - almost 60% of the total population - comprising the labor force. As shown in Table 8, unemployment reduced marginally from 9 to 8.6% from 1990 to 2000. However, the unemployment rate in 2000 was considerably higher than that of Boston, which stood at 4.6%.

Table 8: Work Force of Fields Corner

	1990	2000
	Total (%)	Total (%)
Not in Labor Force	4,686 (31.20%)	6,759 (40.60%)
In Labor Force	10,338 (68.80%)	9,872 (59.40%)
Employed	9,393 (90.90%)	9,019 (91.40%)
Unemployed	935 (9.00%)	853 (8.60%)
In Armed Forces	9 (0.10%)	0 (0.00%)

Source: U.S. Bureau of the Census, Census 2000

Employment by Industry:

For residents of Fields Corner, health care and social assistance was the top employment sector in 2000, accounting for close to 20% of the jobs. As shown in Table 9, approximately 35% of the remaining work force was employed in four other sectors: manufacturing, retail, education and hospitality industries. A detailed breakdown of the employment by industry is given in Table A2 of Appendix A.

Table 9: Employment by Industry (Top 5 categories)

Health care and social assistance	19.30%
Manufacturing	11.00%
Retail trade	9.60%
Educational services	8.60%
Accommodation and food services	7.20%

Source: U.S. Bureau of the Census, Census 2000

Employment by Occupation:

In 2000, more than a quarter of the work force in Fields Corner had a career in administration (16%) or production (12%). A detailed breakdown of the employment by occupation is given in Appendix A, Table A3. In Boston, around 43% of the work force was engaged in management, professional and related occupations.

Office and administrative support occupations	16.20 %
Production	11.50 %
Sales and related occupations	7.70 %

Source: U.S. Bureau of the Census, Census 2000

Commuting to Work:

Of the 9,019 employed people in Fields Corner in 2000, less than 1% worked at home. As shown in Table 11, around 46% commuted to work by car, 15% used carpools, and 30% used public transport. In comparison, in Boston, 42% commuted by car, 32% used public transportation, and only 9% used carpools. However, the percentage of people walking or bicycling to work in Fields Corner, which is close to 5%, was significantly lower than those in Boston, where 13% walked to work.

At home	0.80 %
Walk	4.50 %
Bicycle	0.40 %
Public transport	30.20 %
Carpool	15.30 %
Car	46.60 %
Other	2.20 %

Source: U.S. Bureau of the Census, Census 2000

The median travel time for commuting to work from Fields Corner in 2000 was 31 minutes. Table 12 shows that 15% of the people lived less than a 15 minute commute from their work place and only 12% of the workers commuted for over an hour each way. The mean travel time for commuting to work in Boston in 2000 was 28 minutes.

Median Travel Time To Work	31 minutes
Under 15 minutes	14.80 %
15-30 minutes	29.30 %
30-60 minutes	43.60 %
Above 60 minutes	11.60 %
Worked at home	0.80 %

Source: U.S. Bureau of the Census, Census 2000

EXISTING ENVIRONMENTAL CONDITIONS

The purpose of the environmental analysis is to gain knowledge and understand the physical environment in Fields Corner as compared to greater Boston and to identify potential areas of improvement. The analysis of existing environmental conditions began with a relatively blank slate. There was little compiled data on the state of the environment for Fields Corner and surrounding residential areas. Six broad environmental areas were identified for targeting existing conditions research: air quality, brownfields, water quality, transportation, waste and recycling, and open space. These focus areas were chosen based upon field observations, expressed concerns from Viet AID, and information from lectures for the Sustainable Development Practicum course at the Massachusetts Institute of Technology (Spring 2004).

Air Quality

Outdoor Air Quality

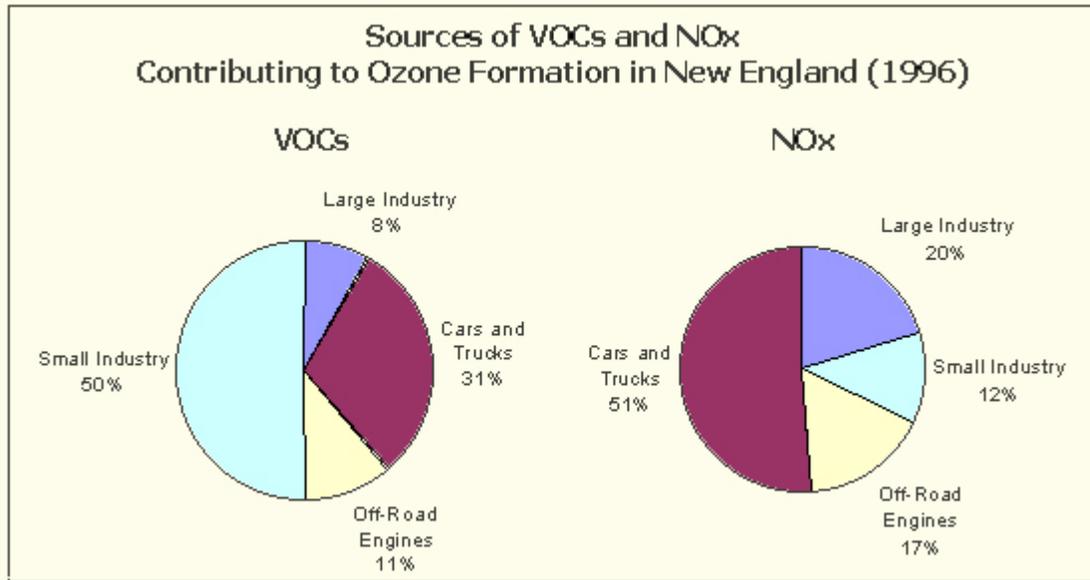
The data for air quality in Fields Corner is generalized from data for the Dorchester and Boston areas. The closest air quality monitoring station is located in Roxbury, approximately 4 miles from Fields Corner. According to Air Beat, the Roxbury air monitoring organization, approximately half of the air pollution in Boston is emitted by vehicles such as automobiles, trucks and buses. An estimated half of these emissions come from the dirtiest ten percent of vehicles. The remaining half of air pollution emitted is from more stationary sources, such as construction equipment, power plants, and commercial and residential sources (mainly vapors from solvents and fuels) (Air Beat 2004).

The federal Clean Air Act requires monitoring and control of various air pollutants that affect human health including, carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), ozone (O₃), and particulate matter (PM). Figure 1 shows the composition of sources that contribute to volatile organic compounds and NO_x, which are factors to the formation of ozone. Massachusetts is currently in attainment according to the National Ambient Air Quality Standards for CO, NO_x, and SO_x. In 1997, new ozone and particulate matter standards were introduced and the state is still trying to meet these standards (MADEP 2002).

While there is little direct information regarding the air quality in Fields Corner, information can be gleaned from health reports and street observations that indicates poorer air quality in the area. According to the Boston Public Health Commission (BPHC), asthma rates are increasing amongst Asian population (in which Vietnamese are categorized) and in Dorchester in general (see Figure 4) (BPHC 2002). Hospitalizations owing to asthma for the Asian population under 5 years old rose from 2.8% in 1999 to 5.6% in 2001 (BPHC 2003). North Dorchester and Roxbury had the highest asthma induced hospitalizations for children under five in the city from 1998 – 2001. Street observations revealed a significant presence of fumes and dust from fuel combustion along the main streets in Fields Corner and in the industrial zones. As shown in figure 3, vehicles contribute 68% of NO_x that is a factor in ozone and smog formation. The impact

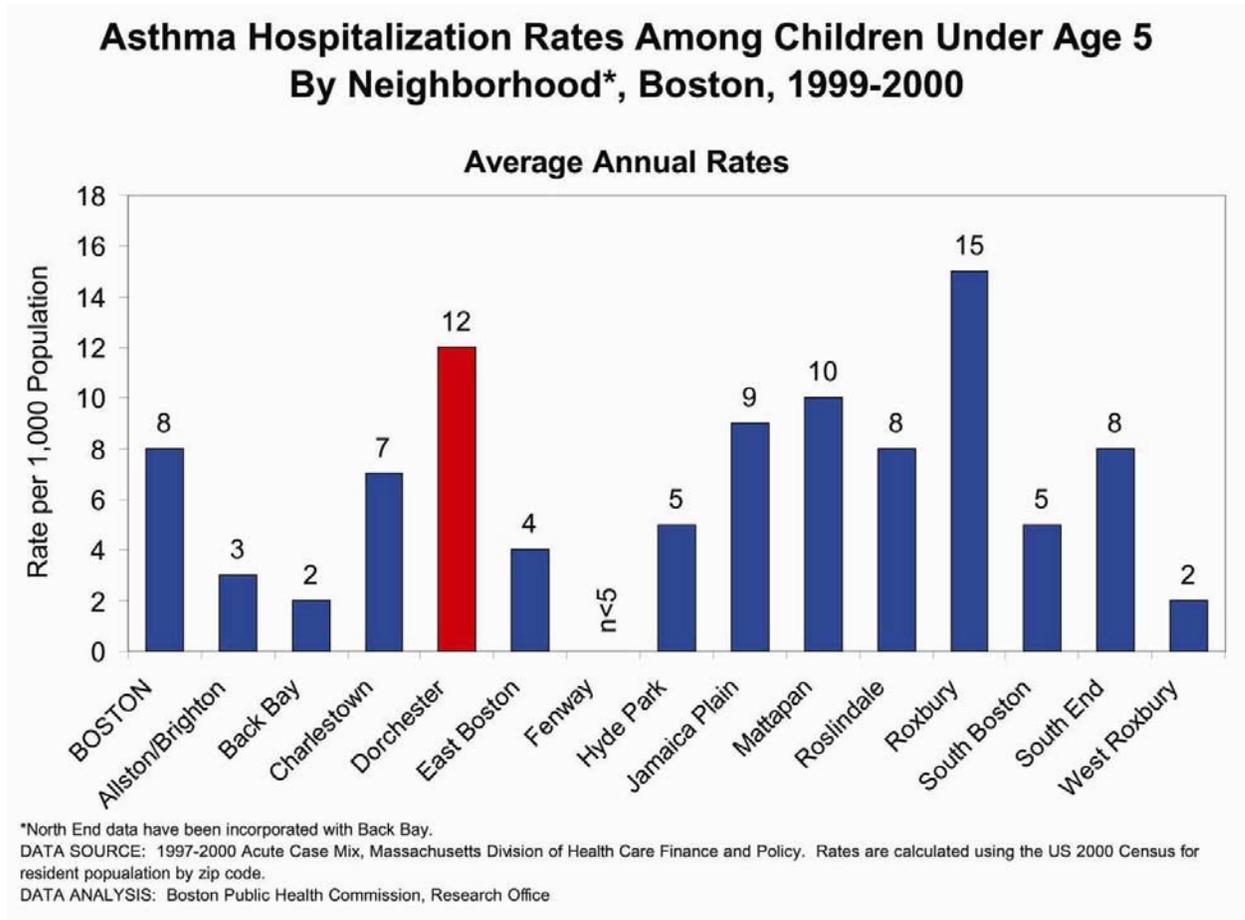
of vehicles and the automotive related businesses will be further addressed in the transportation portion of this section and in the industry specific section of this report.

Figure 3.



Source: Air Beat 2002

Figure 4.



Indoor Air Quality

Indoor air quality can have a major impact on public health, especially in older buildings and those with poor ventilation systems. Indoor air quality for an area can be difficult to assess due to variation in buildings and inhabitant reports of symptoms. The Massachusetts Bureau of Environmental Health Assessment (BEHA) is responsible for indoor air quality in the state. BEHA upholds several standards and regulations for indoor air quality (see Appendix A 1-2). The bureau primarily investigates three sources of potential indoor air pollution: heating, ventilation and air conditioning systems (HVAC), indoor microbial growth, and possible sources of respiratory irritants (BEHA 2002). In order to assess the indoor air quality of buildings in Fields Corner, a full assessment carried out by a trained professional would be required. No existing data from such an assessment was located during existing environmental conditions research.

Brownfields

According to the EPA, a brownfield is “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant” (EPA 2004a). Unless a contamination event has been reported and documented, most brownfields are unknown and require site assessment to determine whether in fact a site is contaminated. In Fields Corner, the Department of Environmental Protection has documented number of spill events since 2000 (see Appendix A 3-4). These roughly match up with brownfields sites identified by the US EPA (see Figure 5). The known spill and releases also align closely with the industrial areas for Fields Corner that are dominated by auto-related businesses. Additionally, twenty-four area businesses are currently regulated by the EPA as handlers of hazardous materials; eleven of which are auto-related.

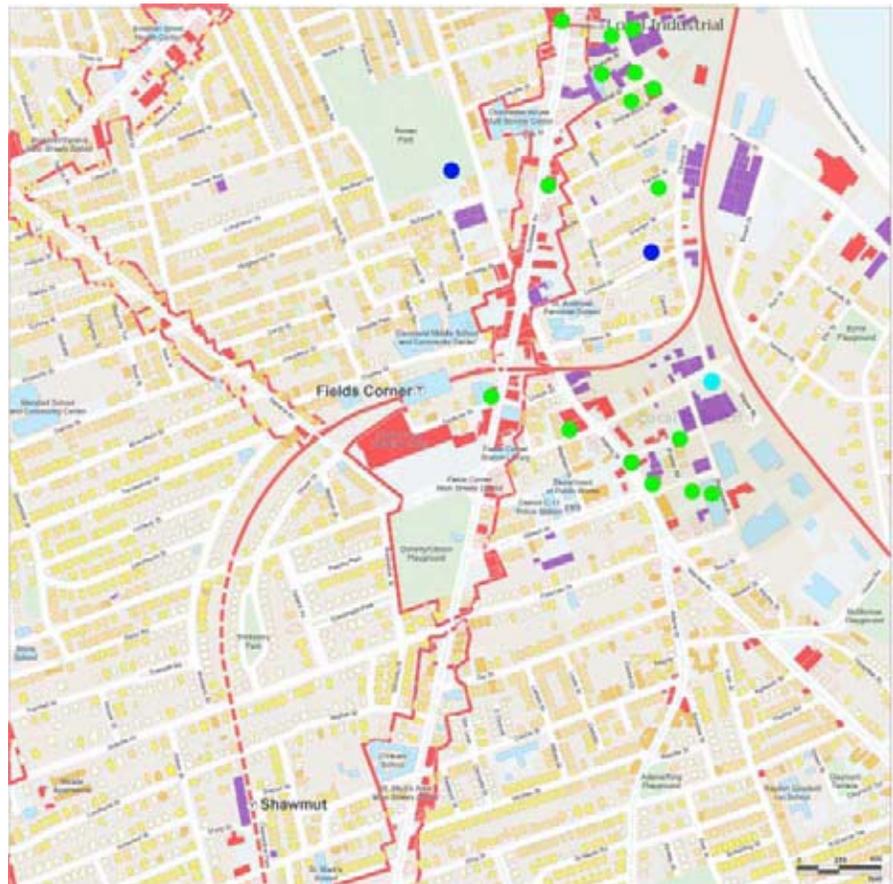
Figure 5. Map of Sites Regulated by the EPA

Green marker –
Hazardous waste

Blue marker –
Air emissions

Turquoise marker –
Toxic releases

Source: EPA 2004b



Brownfields may also be caused by improper disposal of chemicals from residential areas. A survey conducted by the Dorchester Environmental Health Coalition asked respondents whether s/he noticed cars being repaired by individuals on their residential block. Of 64 respondents, 60.6% responded that they had noticed such activities (DEHC 2003). Frequently do-it-yourself repairs result in waste fluids and contaminants that soak into the soil or wash down storm drains, causing environmental harm.

Water Quality

As with air quality, data on water quality is collected for North Dorchester as a whole. According to the Boston Public Health Commission, the water infrastructure of Dorchester is nearly 100 years old and contains lead pipes. However, water tests do not show elevated levels of lead, or any other contaminant, for drinking water in the area.

Storm water runoff and combined sewer overflows (events in which heavy rainfall overflow the sewer system) from Dorchester impacts the surface water quality for Dorchester Bay, including Tenean and Malibu beaches. These two beaches are close to the study area and may be impacted by runoff carrying spilled or leaked contaminants from industrial sites or brownfields. Improper disposal of household chemicals also contributes to poor water quality since treatment plants do not treat the water for all chemicals before releasing it into the Bay. Water quality at the two beaches is tested weekly for various contaminants, such as bacteria. Tenean Beach had the worst recorded water quality from 1996-2001. The beach only met the water quality guidelines for swimming 69% of summer days during this time frame (Dorchester Environmental Health Coalition 2003).

Overall, while drinking water quality for Fields Corner is considered safe, nearby surface water bodies are in poor health. The poor quality of the nearby beaches impacts Fields Corner residents by reducing the amount of recreation they may derive from the area, and reducing the economic draw proximity to the beach might have.

Transportation

The Central Transportation Planning Staff (CTPS) collects transportation data for Fields Corner as part of South Dorchester. The estimated daily traffic along Dorchester Avenue was 13,000 in 2002; only Gallivan Boulevard and Morrissey Boulevard had higher roadway volumes in South Dorchester. The transit routes in and around the study area also had impressive daily ridership counts (see Appendix A 5). CTPS reported 4,700 daily passengers boarding the red line at Fields Corner station. Bus ridership statistics are shown in Table 8.

Table 8. Daily Bus Ridership from Fields Corner

Route #	Destination	Daily Ridership
17	Fields Corner to Andrew Station	3,750
19	Fields Corner to Ruggles Station	1,900
20	Fields Corner to Neponset	1,500

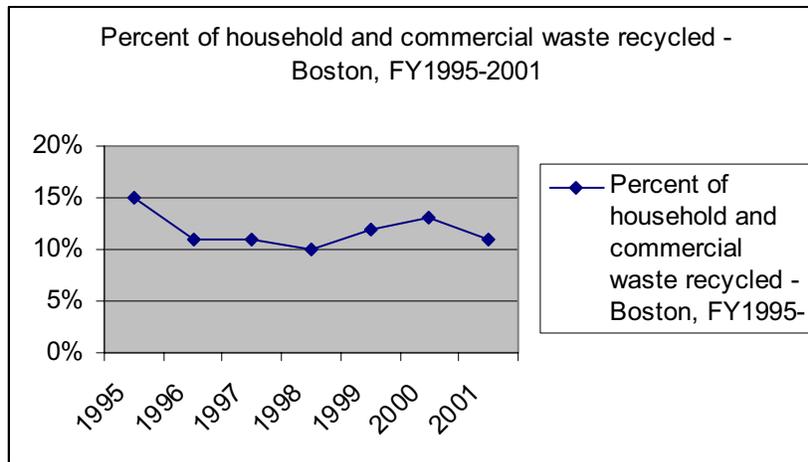
Source: CTPS 2002

Despite the high amounts of daily ridership from Fields Corner station, the area remains largely auto dependent. South Dorchester has automobile use for all destinations and purposes as 74%. The average for the rest of the city is only at 51%. Additionally, trips classified as from home or from work have auto distributions of 68% and 77% respectively. These are compared to transit trips from the same locations at a mere 13%. Total transit use for all destinations and purposes for the city as a whole is approximately 19% (CTPS 2002). The high concentration of automobile ownership and use may be related to the high density of auto-related businesses there were mention earlier in air quality section of environmental conditions and are investigated in detail in the industry specific portion of the Industry Trends and Analysis Section

Recycling and Waste Streams

According to the Boston Foundation, only approximately 11% of household waste is recycled in Boston for 2001 (Boston Foundation 2002). This was down from 15% in 1995 (see Figure 6). There is no specific data for recycling in Fields Corner specifically. Several recycling programs offer incentives to business and land owners, which will be further investigated in Phase II of this report.

Figure 6.

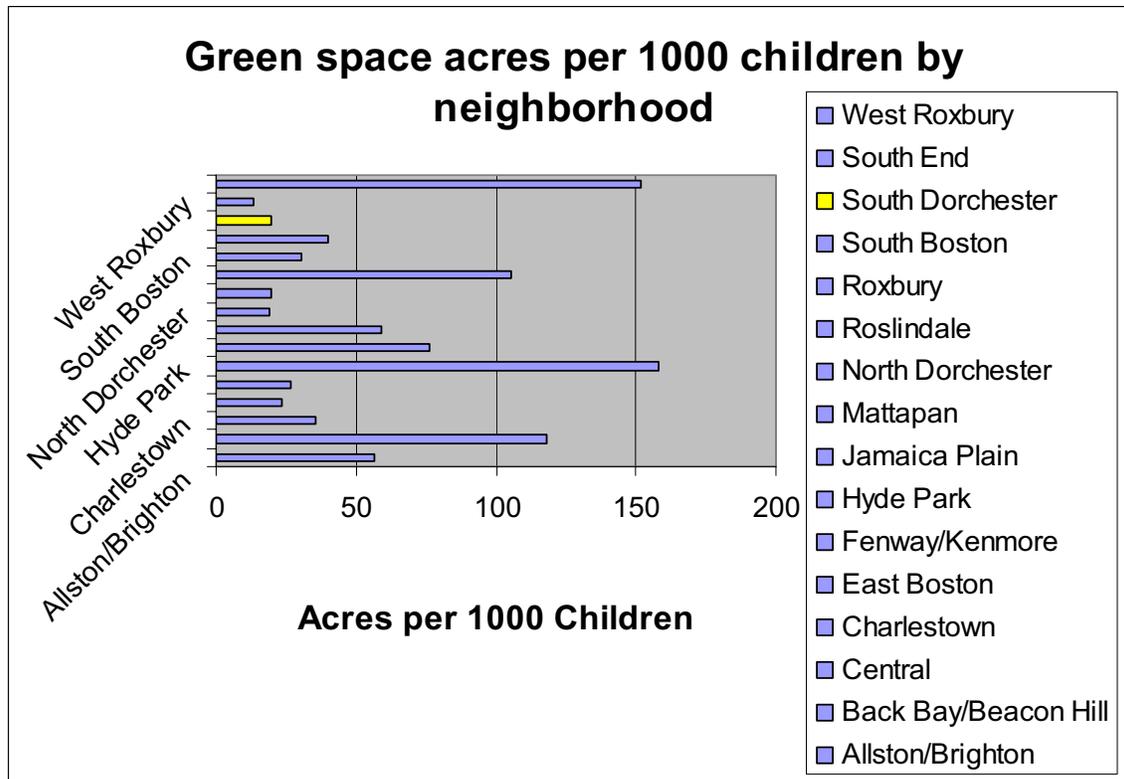


Source: Boston Foundation 2002

Open Space

Open space within the South Dorchester area is among the lowest in Boston. The Boston Foundation estimated 19.9 acres of open space per 1000 children in South Dorchester for 2002 (Boston Foundation 2002) (see Figure 7). The DEHC estimated this was as low as six acres per 1000 people, while Boston as a whole averaged ten acres per 1000 people (DEHC 2003). Within Fields Corner, there are nine open spaces that are classified as parks, playgrounds or community gardens (Parks and Recreation 2004).

Figure 7.



Source: Boston Foundation 2003

INDUSTRY TRENDS AND ANALYSIS OF CURRENT ACTIVITIES – ZIP CODE 02122

The purpose of this analysis is to examine Fields Corner in the context of a larger region, and specifically to identify those industries that have the most economic impacts in the region. The analysis will first look at trends over time from 1994 through 2001, and then a more detailed look into the breakdown of industry activity in the most recent year, 2001. The analysis will then look specifically in the auto-related industry in Fields Corner, since that seemed to be the most dominant industrial activity in the Fields Corner area, and consider both economic and environmental impacts.



About the data – County Business Patterns [CBP]

This analysis will rely on County Business Patterns data from the U.S. Census. Data from 1994-1997 is defined using SIC codes to describe industries. Data from 1998-2001 utilizes the NAICS industry description codes. At the time of this report, data for more recent years were not available. For more information about the CBP, please refer to the website: <http://www.census.gov/epcd/cbp/view/cbpview.html>

Distribution of Economic Activity in Zip Code 02122



The area of analysis has 3 primary areas of commercial activity. Though Fields Corner Main Street District has the highest density of establishments, other commercial areas may have larger establishments as evidenced from the size of the building footprints (red buildings represent commercial use, pink buildings represent mixed use of residential or commercial, and purple represents industrial activity).

There are also 2 areas that are zoned for local industry. A significant amount of auto-related activity is also located in the local industry zoned area, as well as a school bus depot, and heavy equipment warehousing (trucks, bulldozers, etc).

One of the local industry zoned area is also home to the Alsen Maples Industrial Park which was established with city support in 2001. Current tenants include Dutch Maid Bakery, Inc., Royal Label Co. Inc, an electroplating company and a metal finishing

business. This reflects the city's desire to maintain industrial activity in the Fields Corner area, despite that fact that several residential units are in close proximity to the local industry zoned area.

Industry Trends 1994-2001

Comparison of Zip Code 02122 with Suffolk County and Boston MSA

In comparison with the Suffolk County and with the Boston MSA¹, the Zip Code 02122 area has had a consistent rise in total number of establishments, with total numbers of establishments increasing over 20% from 1994 to 2001 [see Appendix I-A].²

However, total number of employment actually decreases in Zip Code 02122 during the same time period from total employment of 6,943 in 1994 to 5,965 in 2001. In contrast, Suffolk County and Boston MSA both show increases in total employment every year. Aside from 1998 to 1999, when total employment in Zip Code 02122 nearly increases to its 1994 level,³ there is a decrease in employment every year from the previous year [see Appendix 1-D].

The trends in total annual payroll reflect general increases yearly except in 1997. Suffolk County and Boston MSA reflect continuous growth from 1994 to 2001. Zip Code 02122 shows high growth only from 1998 to 1999 (the year where there is also spike in total employment). 1994-1995 and 1996-1997 show declines in annual payroll, but all other years (1995-1996, 1997-2001) all reflect increases. Total annual payroll in 2001 reflects an increase of just over 30% from 1994 [see Appendix I-G].

This Table 9 below is a rough comparison of the three areas of analysis in Zip Code 02122:

Area of Analysis	Zip Code 02122 - Change from Prior Year							
	'94	'95	'96	'97	'98	'99	'00	'01
# of Establishments	N=413	↑ 0.73%	↑ 5.05%	↓ 0.69%	↑ 4.15%	↑ 7.08%	↑ 4.96%	↑ 0.39%
Total Employment	N=6,943	↓ 11.18%	↓ 2.76%	↓ 0.95%	↓ 1.04%	↑ 15.94%	↓ 8.72%	↓ 4.12%
Total Payroll	N=144,120	↓ 1.25%	↑ 7.76%	↓ 7.63%	↑ 6.88%	↑ 18.83%	↑ 4.57%	↑ 0.85%

Source: U.S. Census, County Business Patterns

Breakdown by 2-Digit SIC and NAICS Industry Codes

From 1994-1997 (SIC 2-digit codes), there is no dramatic increase or decrease in the number of establishments by industry. 1994 reported 413 total establishments, by 1998 that number had increased to 434 [see Appendix I-B]. Retail trade was the only trade sector with growth in number of establishments every year from 1994-1997. However, from 1998-2001 (NAICS 2-digit), there is an increase of 58 establishments, 31 of which

¹ Information for Boston MSA is only available from 1998-2001

² For a breakdown of number of establishments by 2-digit SIC codes for 1994-1997 refer to Appendix I-B, and for the breakdown of number of establishments by 2-digit NAICS codes for 1998-2001, refer to Appendix I-C.

³ Possibly due to the health care and social assistance industry, see Appendix I-F.

could be attributed to ‘Unclassified establishments,’ 11 attributable to Construction, and 9 attributable to Health Care & Social Services and Professional, Scientific & Technical Services each.⁴ Construction, health care and social assistance, professional-scientific & technical services, and unclassified establishments were the only industry sectors with growth in number of establishments every year from 1998-2001.

Employment trends from 1994-1997 using estimation of employment reveals that significant employment losses occurred in Services and Manufacturing as a proportion of all jobs. All other significant industries showed gains in proportion of total employment [see Appendix I-E]. Construction and transportation & public utilities industry sectors showed growth every year in total proportion of employment. In employment trends from 1998-2001, the two most important trends are significant employment losses in retail trade, and a significant spike in employment in 1999 in the Health Care & Social Assistance sector (but overall small net gain from 1998 to 2001) [See Appendix I-F]. Professional-scientific & technical services, transportation & warehousing, and utilities industry sectors experienced growth in total proportion of employment every year from 1998-2001.

Note of Methodology of Estimating Employment - The CBP provides number of establishments up to the 6-digit industry code level by employment size class (5 firms with 1-4 employees, 2 firms with 5-9 employees, etc). An estimation formula was used based on the employment by size class data to estimate employment levels for each industry down to the 6-digit code. Therefore, this method should not be used to measure exact number of employment. It’s only measure of accuracy is its ability to closely predict total aggregate employment to within 1% for 1997-2001 [see Appendix I-E and I-F.]

2001: Breakdown of Industry Activity in Zip Code 02122

For this analysis, 6-digit NAICS industry descriptions were grouped into 5 categories:

- Food Services
- Health Care & Social Services
- Auto-Related Businesses
- Construction
- Financial and Insurance Services
- All Others

For a breakdown of the 6-digit NAICS industry descriptions, see Appendix II-A.

Number of Establishments in Zip Code 02122

In 2001, the industry sector with the highest percentage of total establishments is the Food Services sector with 15%. Auto-Related and Construction industry sectors represent 11% each of total establishments, followed by Financial and Insurance Services (10%) and Health Care & Social Services (9%). The total number of establishments in 2001 in Zip Code 02122 was 510. For a breakdown of number of establishments, see Appendix II-B. Appendix II-D provides a breakdown defining each industry sector and count of total establishments.

⁴ There were some losses in count of establishments in other industries, see Appendix I-C.

Estimation of Total Employment in Zip Code 02122

In 2001, Health Care & Social Services represent the highest of total employment at 17%, followed by Food Services (16%), Auto-Related Businesses (12%), Construction (11%), and Financial & Insurance Services (6%) [see Appendix II-C]. Total number of employment using estimation was 5,981, and actual total employment as reported to the CBP was 5,965, reflecting a difference of -.28% between the estimation and actual totals. Appendix II-D provides a breakdown defining each industry sector and count of total estimated employment.

Industry Specific Analysis: Auto-Related Industry in Zip Code 02122

The Auto-Related industry was chosen for further analysis to consider its economic and environmental impacts. If need be, a similar approach could be considered for the other industries. The Auto-Related industry was chosen primarily since this was highlighted as a concern by Viet-AID during preliminary meetings, and due to its large presence in the Fields Corner community.

Economic Impacts

The Auto-Related industry is a large presence in the community, representing 11% of all establishments and 12% of total employment in Zip Code 02122. Appendix III-A provides a description of the types of establishments that have been identified as ‘auto-related,’ as well as the number of establishments. The Auto-Related industry has consistently been a presence in Zip Code 02122 at least from 1998 to 2001, and in comparing total number of establishments and estimation of total employment with Boston MSA, Zip Code 02122 has a much higher percentage in the number of establishments as well as in total estimation of employment (see Appendix III-B, III-C, III-D). This reveals that there is a significant concentration of auto-related activity in Zip Code 02122.

An analysis of the wage structure of the auto-related industry reveals that automotive body and related repairers, technicians, and mechanics in the Boston MSA earn a mean annual wage around \$36-\$37,000. Nationally, automobile dealers earn a similar amount, while automotive repair and maintenance workers and auto parts, accessories, and tire dealers earn a mean annual wage of around \$28,000. At the low-end, tire repairers and changers earn a mean annual wage of around \$25,000, and service station attendants earn a mean annual wage of around \$19,000. Considering that the total estimated employment in the auto-related industry is 688 in Zip Code 02122, with 201.5 attributable to car dealers and automotive parts dealers, and 109.5 to automotive repair,⁵ it is apparent from this cursory analysis that the auto-related industry provides a significant number of jobs as well as decent wages. For further data on employment related to the auto-related industry, see Appendix III-E and III-F.

⁵ See Appendix II-D



Lastly, from the field observations of the area, there are many layers of service-orientated businesses that complement the auto-related businesses. This is obvious in the prevalence of insurance offices, physical therapy offices, and physical rehabilitation offices in the vicinity. The image above is that of a cluster of businesses located close to 3 major auto-repair businesses near Fields Corner. The sign shows that in this block alone, there are 4 drive-in auto insurance claims processors.

Environmental Impacts

Despite the economic activity that the auto-related businesses generate, there are also significant environmental impacts that must be considered. Appendix III-G lists the auto-related businesses that potentially have the most environmental impacts due to their activity (repair, paint, cleaning, washing, etc.) Environmental impacts could be categorized into four areas:

- Air Quality
- Water Quality
- Hazardous Materials Handling
- Health Protection for Workers

Air Quality – A significant auto-related industry activity that impacts air quality is the use of paint. Vapors, paint dust from the paint, paint thinners and other cleaning agents, and floor sweepings could be toxic, being hazardous to workers and customers. Proper ventilation, efficiency of equipment, and preferential use of non-toxic paints could all help to reduce the impact of toxic paints in auto-related activities. Proper worker training and safety equipment is another consideration.

Water Quality – Wastewater that is generated from washing cars, car parts, and equipment can carry toxic chemicals into the groundwater. This could include paints, oils, cleaning agents, spills of auto fluids (anti-freeze, refrigerants, battery acid, etc.) and other chemicals. Wastewater often drains into open drains that are

not installed with filters or traps that could capture harmful of chemicals. Water usage is also a concern.

Hazardous Materials Handling – Paints, cleaning agents, sand blast debris, used rags, spray booth filters, anti-freeze, waste oils, battery acid, refrigerants, ventilation filters, and auto parts that contain hazardous waste materials are just some of the wastes that could be considered hazardous. Proper clean-up, disposal, and/or storage is a major concern in ensuring that the activity generated by the establishment does not lead to long-term detriments as a result of improper handling of hazardous materials.

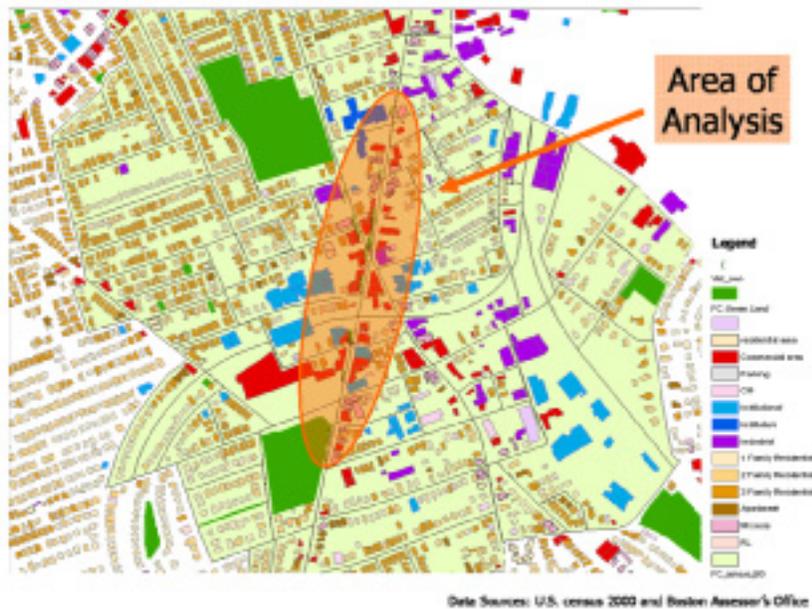
Health Protection for Workers – Bad air quality, contaminated water, and work attributable chemicals could be absorbed into the lungs, skin, and digestive systems of workers (and customers), not to mention the environment. Proper protection, training, and equipment for workers is essential since they are the one who make the day-to-day decisions that could significantly reduce or worsen the environmental impacts related to the auto-related businesses.

From street observations, it is apparent that there are other quality of life issues related with auto-related businesses. There is no consideration of green space, there is an increased reliance on automobiles for mobility, and there is very little beautification that comes with any type of auto-related business (the advertising generally seem garish). Activity is often done behind closed garages, so there is no contribution to the streetscape and general sense of activity that Fields Corner could benefit from. Also, the types of businesses that the auto-related businesses attract (insurance offices, physical rehabilitation offices) also do not quality of life benefits.

Appendix III-I lists some of the many resources that are available in promoting best practices in pollution prevention in the auto-related industry.

BUSINESS ANALYSIS OF FIELDS CORNER

Fields Corner Commercial Area



The business analysis targets business activities around the T station (the Fields Corner main transit), which are mainly concentrated along Dorchester Ave and around its intersection with Adams Street. The business existing condition analysis consists of three components. 1. *Streetscape* - the impression of this commercial district. 2. *Business mix analysis* – By comparing the business mix between Fields Corner and a typical neighborhood shopping center in terms of

the number of business establishments, as well as comparing its business mix to a typical neighborhood commercial districts in terms of gross lease area (GLA), we wish to identify the market gaps, and ultimately, seek to expand the market opportunities in Fields Corner. 3. *Vietnamese owned business analysis* - Identify their business pattern and their performance by comparing it to the rest of the Fields Corner commercial area.

Street-Scape of Main Streets District

Poor street image

The façade of buildings are not attractive and apparently not always well-maintained. It also suffers from lack of street cleaning and open space.

Pedestrian Activity

- Lack of bicycle racks and bike friendly street space
- Pedestrian comfort
 - Safe during the day
 - Lots of public accountability spaces
 - Potential night time issues (Shuttered businesses, lack of ‘public eyes’)
 - Lack of crosswalks (despite ‘buttoned’ walk lights)
 - Issues of wheelchair access (sidewalk gradients, brick sidewalks)
- Bad driving, poorly designed traffic routes (Citizens Bank – left turn pockets)
 - Adams/Dorchester has unsafe intersection (left going north on Dorchester)



Parking

It is apparently car dependent, but it lacks of parking lot in this commercial area.

Business diversity

Business mix is not so diversified and there are significant numbers of beauty-related, auto-related and insurance businesses in Fields Corner.



Fields Corner Main Streets Area Commercial Analysis

Fields Corner District contains approximately 143 businesses and 116,539 square feet of central commercial space (including the Fields Corner Shopping Center).⁶ By comparing this with a typical Neighborhood Shopping Center, the most striking characteristic of the district is the overrepresented financial company/ insurance and medical/dental centers, as well as a lack of dry cleaners, super markets and drugstores/pharmacies.

In order to make analysis more reliable, we analyze the Business Mix in terms of the amount of business establishments and the estimated GLA from U.S. Reference data⁷. By comparing the numbers of stores in a typical neighborhood shopping center and the estimated GLA analysis in a typical neighborhood commercial center, we identified:

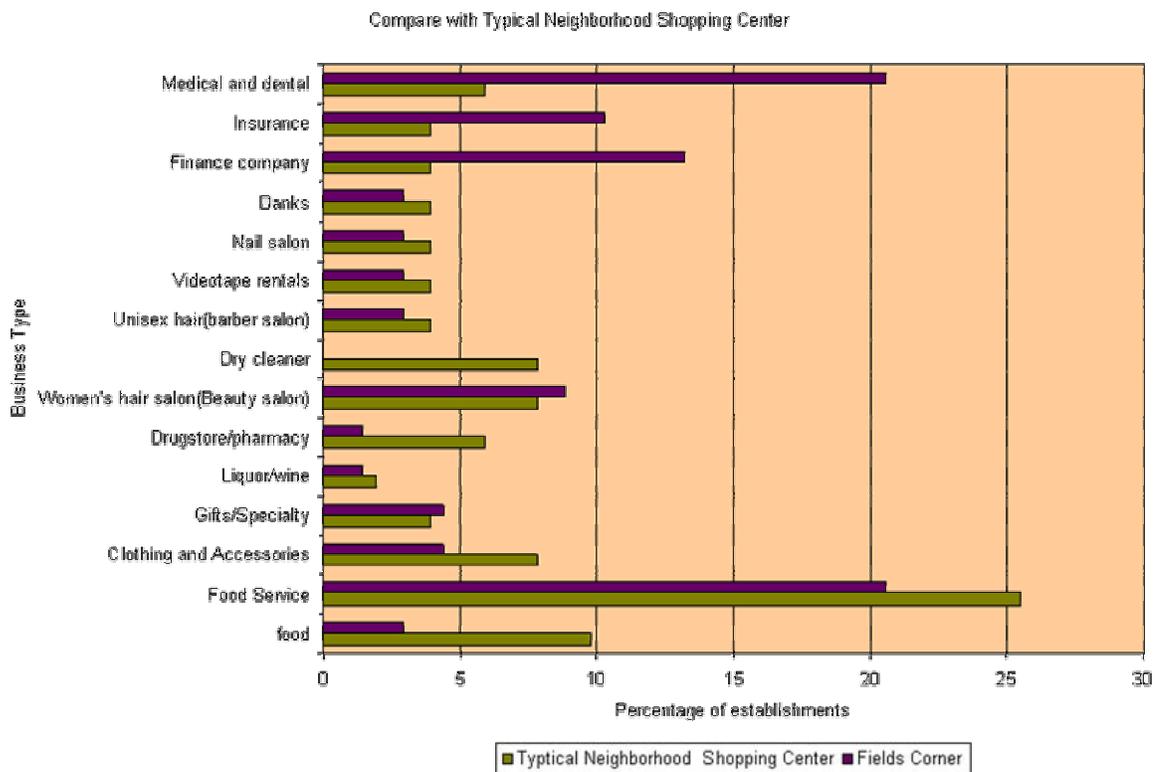
Overrepresented types of businesses:

- Building Materials/Hardware
- Financial/Insurance/Real Estate

Underrepresented types of businesses:

- Food supply/supermarket
- Food services

Figure 8.



⁶ Refer to appendix C-I

⁷ U.S. Reference (<http://www.usreference.com>) only provides the range of estimated GLA, the analysis here was using the mid-point of each range.

**Table 10. Business Mix Compared with Typical neighborhood Shopping Centers
---by number of establishments**

Tenant Classification	Typical Neighborhood Shopping Center			Fields Corner			
	Rank	Ave # of stores	% of total	# of stores	% of total	Differences	Shortage
Food							
supermarket	2	0.5	9.80	2	2.94	-6.86	-70
Food Service			25.49	14	20.59	-4.90	-19
Restaurant without liquor	15	0.2	3.92				
Restaurant with liquor	3	0.4	7.84				
Sandwich shop	16	0.2	3.92				
Pizza	5	0.3	5.88				
Chinese fast food	12	0.2	3.92				
Clothing and Accessories			7.84	3	4.41	-3.43	-44
Women's specialty	18	0.2	3.92				
Women's ready-to-wear	17	0.2	3.92				
Gifts/Specialty							
Cards and gifts	19	0.2	3.92	3	4.41	0.49	13
Liquor							
Liquor/wine	20	0.1	1.96	1	1.47	-0.49	-25
Drugs							
Drugstore/pharmacy	6	0.3	5.88	1	1.47	-4.41	-75
Personal Services							
Women's hair salon(Beauty salon)	4	0.4	7.84	6	8.82	0.98	13
Dry cleaner	2	0.4	7.84	0	0	-7.84	-100
Unisex hair(barber salon)	8	0.2	3.92	2	2.94	-0.98	-25
Videotape rentals	9	0.2	3.92	2	2.94	-0.98	-25
Nail salon	14	0.2	3.92	2	2.94	-0.98	-25
Financial							
Banks	11	0.2	3.92	2	2.94	-0.98	-25
Finance company	10	0.2	3.92	9	13.24	9.31	238
Insurance	13	0.2	3.92	7	10.29	6.37	163
Offices(other than Financial)							
Medical and dental	7	0.3	5.88	14	20.59	14.71	250

Sources: U.S. Neighborhood Shopping Centers; U.S. references (2004)

Figure 9.

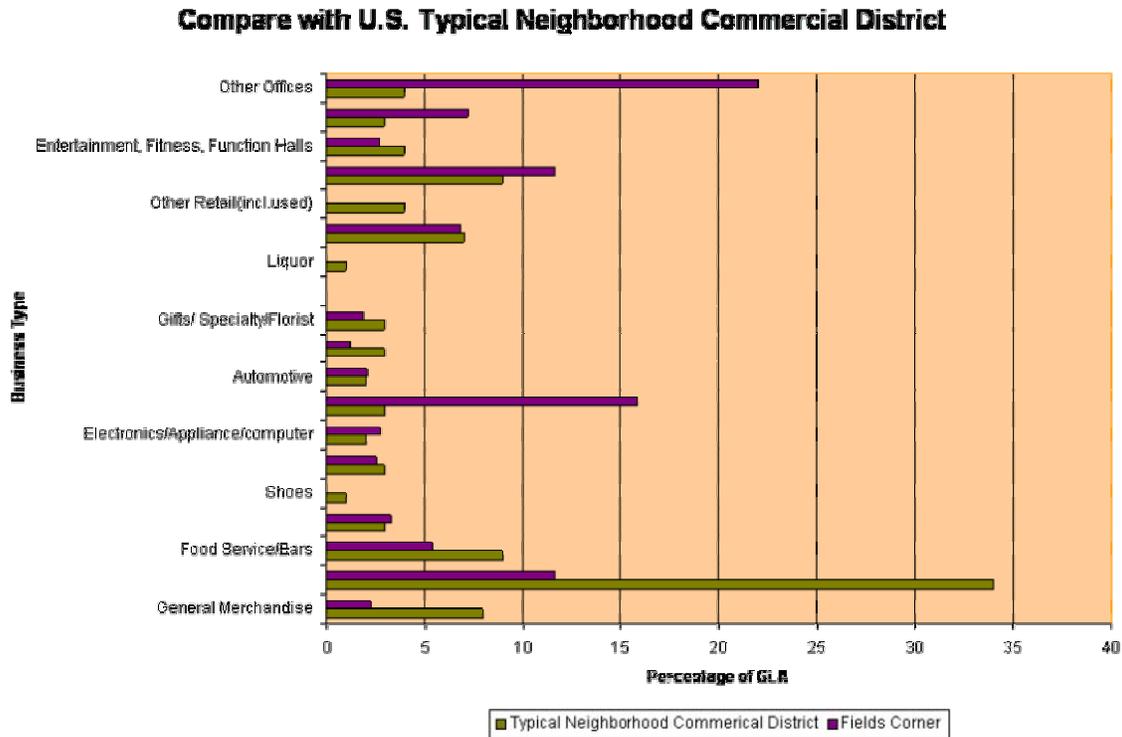


Table 11. Business Mix Compared with Typical Commercial Centers
 ----by GLA(Gloss Lease Area)

Business Mix Compared with Typical Commercial Centers by GLA	Fields Corner		Typical U.S. Shopping Centers	
	# of Business	% share of GLA	% share (2000)	Gaps of % share
General Merchandise	6	2.3	8	-5.6
Food	6	11.7	34	-22.0
Food Service/Bars	14	5.4	9	-3.4
Clothing and Accessories	3	3.3	3	0.4
Shoes	0	0.0	1	-1.0
Home Furnishings	1	2.6	3	-0.4
Electronics/Appliance/computer	3	2.8	2	0.9
Building Materials/Hardware	8	15.9	3	13.4
Automotive	4	2.1	2	0.1
Hobby/Special Interest	5	1.2	3	-1.8
Gifts/ Specialty/Florist	3	1.9	3	-1.0
Jewelry	1	0.1	<0.5	----
Liquor	1	0.1	1	-0.9
Drugs, Health & Beauty	26	6.8	7	0.0
Other Retail (incl. used)	1	0.1	4	-3.9
Personal Services	25	11.7	9	3.1
Entertainment, Fitness, Function Halls	2	2.7	4	-1.2
Financial/Insur/Real Estate	20	7.2	3	4.4
Other Offices	14	22.0	4	18.6
Total	143	100.0	103	0.0

Reference: Market Analysis Summary Four Corners Main Streets Commercial Corridor
 Sources: U.S. references (2004)

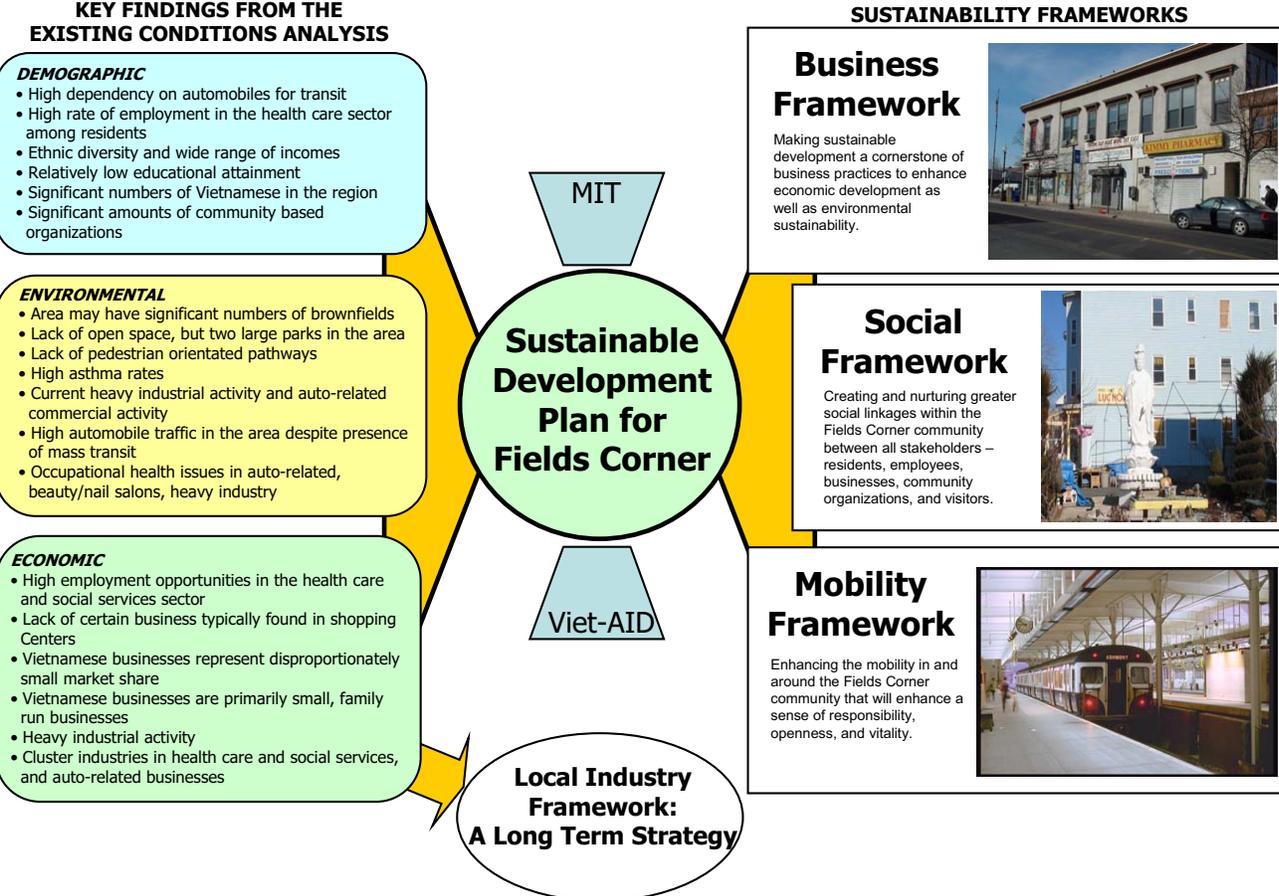
Vietnamese Businesses in the Main Streets Area

According to the analysis of **Vietnamese-owned business in Fields Corner** (25% of total establishments, 36/143)⁸, they **occupied roughly 13% GLA** in Fields Corner Commercial area **but only contributed 2% of the sales** in the whole area⁹. Most of them are family based and small business, whose estimated sales are less than 500,000 dollars. In terms of business type, they are mostly beauty/nail salons (4/6) and a large part of restaurants in Fields Corner are Vietnamese-owned.

⁸ Refer to appendix C-II

⁹ Again, this comparison is based on the mid-point of estimated sales and GLA in U.S. references dataset.

PUTTING IT ALL TOGETHER: Key Findings and Frameworks



OPTIONS FOR NEXT STEPS: 3 Sustainability Frameworks

Business Focus

This option focuses on the current commercial assets of the Fields Corner neighborhood.

End Goal & Vision:

Improve sustainability of Fields Corner by focusing on the commercial assets of the neighborhood. By making sustainable development a cornerstone of business practices we hope to enhance economic development as well as environmental quality goals.

Objectives:

- Help Vietnamese business realize market potential and opportunity
- Increase sense of business owners' responsibility as members of community
- Introduce best practices for sustainable development for specific business types
- Increase networks between related businesses to attain sustainable development and economic development goals
- Improve links between business owners, employees, residents, and other businesses

Implementation Actions:

- Environmental best practices
- Employee well-being best practices
- Business association for sharing resources and information
- Spread information to Vietnamese-owned businesses throughout greater Boston area

Mobility Focus

This option focuses on altering how people move around Fields Corner.

End Goal & Vision:

Improve sustainability of Fields Corner by enhancing mobility in and around the community through design improvements, promoting pedestrian-friendly activities, and introducing alternative means and purposes of travel.

Objectives:

- Leverage new design of T station to increase non-auto modes of transportation
- Increase walking, cycling and transit use as modes of transportation
- Increase sense of openness, safety, access, & comfort by enhancing pedestrian-orientated activities
- Partner with local businesses to target and increase pedestrian customer base
- Increase linkages between local residents/employees, and the commercial district/major employers

Implementation Actions:

- More pedestrian friendly streetscapes
- Eliminate barriers to pedestrian flows, and promote events, actions, structures that enhance pedestrian flows
- Engage businesses/property owners to improve facades and increase business hours
- Market Fields Corner as an accessible and friendly destination

Social Focus

This option focuses on social networks and activities in Fields Corner.

End Goal & Vision:

Improve sustainability of Fields Corner by creating and nurturing greater social linkages within the Fields Corner community between all stakeholders – residents, employees, businesses, community organizations, visitors, etc.

Objectives:

- Identify and eliminate the barriers and sense of division that prohibit community building
- Tap into underutilized social assets of neighborhood
- Increase pedestrian traffic, creating a sense of community, increasing public safety, and promoting business and local social activity
- Work with the huge youth population to ensure their linkages with the larger community
- Increase community pride, sense of place, and joint responsibility for working towards sustainable development

Implementation Actions:

- Engage large youth population to improve community (murals, festivals, etc.)
- Social festivals & expansion of existing cultural, social, and/or commercial activities
- Social assets directory
- Increase the collaborative capacity of the numerous community based organizations and service providers in the neighborhood

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APPENDIX A

Demographic data for Fields Corner (Source US Census 2000)

Table A1: Educational Attainment for Fields Corner in 2000	
	(%)
School: Grade K - 9	15.35
School: 9th to 11th grade, but no diploma	14.88
School: High School Graduate	29.93
College: Some College, No Degree	16.38
College: Associates Degree	5.86
College: Bachelor's Degree	12.39
College: Graduate Degree	5.21

Table A2: Employment by Industry in Fields Corner in 2000	
	(%)
Accommodation and food services	7.20
Administrative and support and waste management service	4.10
Agriculture forestry fishing and hunting	0.30
Arts entertainment and recreation	1.30
Construction	6.50
Educational services	8.60
Finance and insurance	4.90
Health care and social assistance	19.30
Information	2.40
Management of companies and enterprises	0.00
Manufacturing	11.00
Other services (except public administration)	6.80
Professional scientific and technical services	3.40
Public administration	5.80
Real estate and rental and leasing	1.50
Retail trade	9.60
Transportation and warehousing	4.60
Utilities	1.10
Wholesale trade	1.40

Table A3: Employment by Occupation for Fields Corner in 2000

	(%)
Architects surveyors cartographers and engineers	0.30
Arts design entertainment sports and media occupation	1.10
Building & grounds cleaning & maintenance occupation	5.40
Business operations specialists	1.30
Community and social services occupations	4.00
Computer and mathematical occupations	2.00
Construction trades workers	6.10
Drafters engineering and mapping technicians	0.60
Education training and library occupations	4.10
Farmers and farm managers	0.10
Farming fishing and forestry occupations	0.20
Financial specialists	2.00
Fire fighting prevention and law enforcement workers	1.60
Food preparation and serving related occupations	5.30
Health diagnosing and treating practitioners and tech	2.10
Health technologists and technicians	2.50
Healthcare support occupations	2.50
Installation maintenance and repair occupations	2.70
Personal care and service occupations	3.30
Legal occupations	0.50
Life physical and social science occupations	0.90
Management occupations except farmers and farm manage	5.00
Material moving workers	3.00
Motor vehicle operators	3.60
Office and administrative support occupations	16.20
Production	11.50
Protective Service Occupations	1.60
Rail water and other transportation occupations	0.20
Sales and related occupations	7.70
Supervisors construction and extraction workers	0.20
Supervisors transportation and material moving worker	0.20

APPENDIX B

A-I. Ventilation Requirements

Table 1: Required Mechanical Ventilation Air in Frequently Encountered Building Spaces/Areas

Facility/Area Type	Outdoor air [cubic feet per minute(cfm) per occupant]
Classrooms	15
Auditoriums	15
Dining rooms	15
Libraries	15
Gymnasiums	20
Laboratories	20
Office spaces	20
School Training Shops	20
Beauty salons	25
Commercial dry cleaners	30
Smoking lounges b	60
Dark Room	0.5 cfm per square foot of floor space
Swimming Pools (pool and deck area)	0.5 cfm per square foot of floor space
Pet Shops	1 cfm per square foot of floor space
Public Restrooms b	75 cfm per water closet or urinal
a BOCA National Mechanical Code-1993	
b exhaust ventilation required	

Source: BEHA 2002

A-II. Potential Sources of Indoor Air Pollutants

Potential Sources of Indoor Air Pollutants		
Building renovations	Mimeograph machines	water heaters
Vocational shops	chemical storage	air fresheners
art rooms	new furniture	dry cleaning solvents
Pottery kilns	Carpeting	nail application solvents
Custodial products	lamination machines	spray paint
Pesticide applications	school/clerical supplies	spray on artificial snow
Vehicle exhaust	fuel oil vapors	dry erase markers
wood stove smoke	sewer gas from dry traps	dry erase board cleaners
photocopier	janitorial supplies	chalkboards

Source: BEHA 2002

A-III. Table of DEP brownfields sites in Fields Corner study area

	Release Address	Site Name/Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type
1	ADAMS ST	NO LOCATION AID	120 DY	04/14/2003	UNCLASSIFIED	04/14/2003			Hazardous Material
2	ADAMS ST CENTRAL AVE	BAKER CHOCOLATE MILLS FMR	NONE	01/15/1990	RAO	07/31/2000	PHASE II	B1	
3	191 BOWDOIN ST	NO LOCATION AID	72 HR	03/20/2003	UNCLASSIFIED	03/20/2003			Oil
4	91 CENTER ST	NO LOCATION AID	TWO HR	12/05/2003	UNCLASSIFIED	12/05/2003			Oil
5	42-46 CHARLES ST	NO LOCATION AID	120 DY	09/10/2001	TIER 2	12/04/2001	PHASE III		Oil and Hazardous Material
6	1274 DORCHESTER AVE	MOBIL SERVICE STATION	NONE	01/15/1987	INVSUB	11/08/2002	PHASE II		
7	FAULKNER ST	INTERSECTION OF DORCHESTER AVE	120 DY	09/12/2002	TIER 1D	09/19/2003			Oil
8	140-150 FREEPORT ST	LIQUIDATOR PENN CENTRAL	NONE	07/12/1985	RAO	10/10/2000		A3	Oil
9	53 FREEPORT ST	NO LOCATION AID	72 HR	05/13/2002	RAO	08/07/2002		A2	Oil
10	88 FREEPORT ST	NO LOCATION AID	72 HR	09/11/1998	RAO	09/08/2000		A2	Oil
11	FREEPORT ST	MWRA COMMERCIAL POINT CSO	TWO HR	03/12/2003	RAO	05/20/2003		A1	Hazardous Material
12	27 GREENOCK ST	NO LOCATION AID	TWO HR	11/06/2000	TIER 1D	11/13/2001			Oil
13	55 GREENWICH ST	NO LOCATION AID	72 HR	05/02/2001	RAO	07/02/2001		A2	Oil
14	115 HOMES AVE	NO LOCATION AID	72 HR	01/14/2003	RTN CLOSED	02/03/2003			Oil

15	115-123 HOMES AVE	BETWEEN TOPLIFF AND DRAPER	120 DY	02/22/2002	RAO	03/12/2003	PHASE II	A2	Oil and Hazardous Material
16	NEPONSET RIVER TRL	NO LOCATION AID	TWO HR	06/30/1999	RAO	06/28/2000		A2	Hazardous Material
17	40-44 STURTEVANT ST	PARKMAN ST	72 HR	01/09/2002	RAO	03/07/2002		A2	Oil

SUMMARY:

Total within study area: 36

Total within study area since 2000: 17

Oil: 10

Hazardous: 3

Both: 2

Not indicated: 2

Yellow shading indicates release of 120 &/or hazardous material within field study area

Definition of columns:

Site Name/Location Aid: This field will retrieve any site/release name that contains the entered string of characters (i.e., a search for "Station" will retrieve "Fire Station", "Gas Station", etc.).

Reporting Category:

How quickly a release must be reported to DEP. The potential severity of a release dictates how soon it must be reported. Reporting categories are 2 hours, 72 hours, and 120 days.

Notification Date:

The date DEP uses to establish 21E deadlines. This date is usually the date when the site/release was reported to DEP. However, for some sites, especially those dating before 1993, the notification date may be later than the date DEP first learned about the site.

Compliance Status:

21E sites compliance status definitions:

- **ADEQUATE REG (Adequately Regulated):** A site/release where response actions are deemed adequately regulated under another DEP program or by another government agency.
- **DEPMOU (Memorandum of Understanding):** A site/release where DEP has a Memorandum of Understanding or other written agreement with a responsible party.
- **DPS (Downgradient Property Status):** A site where a DPS Submittal to DEP has stated that contamination on the property is coming from an upgradient property.
- **DPSTRM (Downgradient Property Status Terminated):** A site where Downgradient Property Status has been terminated.
- **INVSUB (Invalid Submittal):** An RAO Statement that was submitted for the site has been determined to be invalid by DEP.
- **RAO (Response Action Outcome):** A site/release where an RAO Statement was submitted. An RAO Statement asserts that response actions were sufficient to achieve a level of no significant risk or at least ensure that all substantial hazards were eliminated.
- **REMOPS (Remedy Operation Status):** A site where a remedial system which relies upon Active Operation and Maintenance is being operated for the purpose of achieving a Permanent Solution.
- **RTN Closed:** Future response actions addressing the release associated with this Release Tracking Number (RTN) will be conducted as part of the response actions planned for the site under another "primary" RTN.
- **STMRET (Statement Retracted):** An RAO Statement that had been submitted for the site has been retracted.
- **TCLASS (Tier Classification):** A site/release where a Tier Classification Submittal was received, but the classification type has not been confirmed by DEP.

Note: Sites are usually Tier Classified using the Numerical Ranking System (NRS). The NRS scores sites on a point system based on a variety of factors. These include the site's complexity, the type of contamination, and the potential for human or environmental exposure to the contamination. In addition, some sites are automatically classified as Tier 1 sites if they pose an imminent hazard, affect public water supplies, or miss regulatory deadlines.

- **TIER 1A:** A site/release receiving a total NRS score equal to or greater than 550. These sites/releases require a permit and the person undertaking response actions must do so under direct DEP supervision.
- **TIER 1B:** A site/release receiving an NRS score of less than 550 and equal to or greater than 450. These sites/releases also require a permit, but response actions may be performed under the supervision of a Licensed Site Professional (LSP) without prior DEP approval.
- **TIER 1C:** A site/release receiving a total NRS score of less than 450 and equal to or greater than 350. A site/release receiving a total NRS score of less than 350, but which meets any of the Tier 1 Inclusionary Criteria specified in 310 CMR 40.0520(2)(a), is also classified a Tier 1C. These sites/releases also require a permit, but response actions may be performed under the supervision of an LSP without prior DEP approval.
- **TIER 2:** A site/release receiving a total NRS score of less than 350, unless the site meets any of the Tier 1 Inclusionary Criteria (see above). Permits are not required at Tier 2 sites/releases and response actions may be performed under the supervision of an LSP without prior DEP approval. All pre-1993 transition sites that have accepted waivers are categorically Tier 2 sites.
- **TIER 1D:** A site/release where the responsible party fails to provide a required submittal to DEP by a specified deadline. Note: formerly **Default Tier 1B**.
- **UNCLASSIFIED:** A release that has not reached its Tier Classification deadline (usually one year after it was reported), and where an RAO Statement, DPS Submittal, or Tier Classification Submittal has not been received by DEP.

The following definitions apply to sites that were reported to DEP prior to October 1993 and which were regulated under an older version of the MCP:

- **DEPNDS:** DEP Not a Disposal Site means that DEP has determined that these locations did not need to be reported and are not disposal sites.
- **DEPNFA:** DEP No Further Action means that response actions were conducted and DEP determined that no further action was needed for the site.
- **LSPNFA:** LSP No Further Action means that response actions were conducted and an LSP has determined that no further action was needed for the site.
- **PENNDS:** Pending Not a Disposal Site means a document was submitted to DEP asserting that these locations did not need to be reported and are not disposal sites. These submittals are considered pending until DEP audits them.
- **PENNFA:** Pending No Further Action means a document was submitted to DEP asserting that a site assessment had determined that no further action was required. These submittals are considered pending until DEP audits them.
- **WCSPRM:** A Waiver Completion Statement has been submitted to DEP.

Phase:

Indicates the release/site cleanup phase.

- **No Phase:** Phase report not required or not submitted.
- **Phase I:** Initial Site Investigation, including Tier Classification. In this phase, samples are collected and analyzed to determine the types, amounts, and location of contaminants.
- **Phase II:** Comprehensive Site Assessment. During Phase II, the risks posed to public health, welfare, and the environment are determined.
- **Phase III:** Identification, Evaluation, and Selection of Comprehensive Remedial Action Alternatives and the Remedial Action Plan. In Phase III, cleanup options are assessed and a cleanup plan is selected.
- **Phase IV:** Implementation of the Selected Remedial Action Alternative and Remedy Implementation Plan. The cleanup plan is implemented in Phase IV.
- **Phase V:** Operation, Maintenance, and/or Monitoring. During Phase V, long-term treatment processes are implemented and monitored to track cleanup progress.

RAO Class:

The class of Remedial Action Outcome submitted to the Department:

- **Class A RAO-** Remedial work was completed and a level of "no significant risk" has been achieved.
- **Class B RAO-** Site assessment indicates that "no significant risk" exists. No remedial work was necessary.
- **Class C RAO-** A temporary cleanup. Although the site does not present a "substantial hazard", it has not reached a level of no significant risk. The site must be evaluated every five years to determine whether a Class A or Class B RAO is possible. All sites are expected eventually to receive a Class A or B RAO.

Chemical Type: This field allows you to retrieve sites/releases by chemical type (i.e., "Oil", "Hazardous material" or Both).A pick list is available.

A-IV. Table of EPA Regulated Facilities in Study Area

Auto-related	<u>FACILITY NAME/ADDRESS</u>	<u>Permitted Discharges to Water?</u>	<u>Toxic Releases Reported?</u>	<u>Hazardous Waste Handler?</u>	<u>Air Releases Reported?</u>	<u>BRS Reporter?</u>
X	<u>ADAMS ST AUTO INC</u> 326 ADAMS ST BOSTON (BOSTON), MA 02122 Last update: 6/88	NO	NO	YES	NO	NO
	<u>ARBORWAY METAL FINISHING INCORPORATED</u> 50 PARK ST. BOSTON (DORCHESTER), MA 02122 Last updated: 11/02	NO	YES	YES	NO	NO
X	<u>ATLANTIC AUTO SALES & SERVICE INC</u> 1676 DORCHESTER AVE BOSTON (BOSTON), MA 02122 (just outside) Last updated: 11/82	NO	NO	YES	NO	NO
X	<u>AUTOZONE 5142</u> 1404 DORCHESTER AVE BOSTON (BOSTON), MA 02122 Last updated: 5/00	NO	NO	YES	NO	NO
	<u>BOSTON GAS CP LIQUEFIED NATURAL GAS</u> 220 VICTORY ROAD BOSTON, MA 021220000 Outside area but air releases could affect Last updated: 3/03	NO	NO	YES	YES	NO

	BOSTON METAL FINISHING INC 35 FREEPORT WAY BOSTON (DORCHESTER), MA 02122 Last updated: 11/96	NO	NO	YES	NO	NO
X	CHEVY AUTO BODY INC 82 CHRISTOPHER ST BOSTON (BOSTON), MA 02122 Last updated: 7/86	NO	NO	YES	NO	NO
	CHILD SAFE DELEADING CO INC 393 GENEVA AVE BOSTON (DORCHESTER), MA 02122 Last updated: 4/95	NO	NO	YES	NO	NO
	CUTTER D J & CO INC 88 FREEPORT ST BOSTON (DORCHESTER), MA 02122 Last updated: 6/91	NO	NO	YES	NO	NO
	EXECUTIVE CLEANERS 514 GENEVA AVE BOSTON (BOSTON), MA 02122 Last updated: 12/82	NO	NO	YES	NO	NO
	LENOX CLEANERS INC 1491 DORCHESTER AVE BOSTON (BOSTON), MA 02122 Last updated: 12/82	NO	NO	YES	NO	NO
X	LOUIES AUTO SERVICE CENTER 1311 DORCHESTER AVE BOSTON (DORCHESTER), MA 02122 Last updated: 1/87	NO	NO	YES	NO	NO
	LYONS GEORGE E JR INC 40 STURTEVANT ST BOSTON (DORCHESTER), MA 02122 Last updated: 10/86	NO	NO	YES	NO	NO

	M B T A DORCHESTER BUS & TRAIN TENEAN ST END OF DEAD END ST BOSTON (DORCHESTER), MA 02122 Last updated: 5/88	NO	NO	YES	NO	NO
	MA NATL GUARD MAINT SHOP 1 70 VICTORY RD NATL GD ARMORY BOSTON (DORCHESTER), MA 02122 Last updated: 7/85	NO	NO	YES	NO	NO
	MACDONALD & EVANS INC 69 TENEAN ST BOSTON (BOSTON), MA 02122 Just outside area Last updated: 10/80	NO	NO	YES	NO	NO
X	MOTORLAND INC 90 FREEPORT ST BOSTON (BOSTON), MA 02122 Last updated: 1/86	NO	NO	YES	NO	NO
X	PETERS AUTO BODY INC 15 FREEPORT WAY BOSTON (BOSTON), MA 02122 Last updated: 10/85	NO	NO	YES	NO	NO
X	RICHARDI AUTOMOTIVE CO INC 61 TENEAN ST BOSTON (DORCHESTER), MA 02122 Last updated: 2/87	NO	NO	YES	NO	NO
	ROYAL LABEL CO INC 80 FREEPORT ST BOSTON (DORCHESTER), MA 02122 Last updated: 1/81	NO	NO	YES	NO	NO
	SERAGEN INC 54 CLAYTON ST BOSTON (BOSTON), MA 02122 Last updated: 7/82	NO	NO	YES	NO	NO

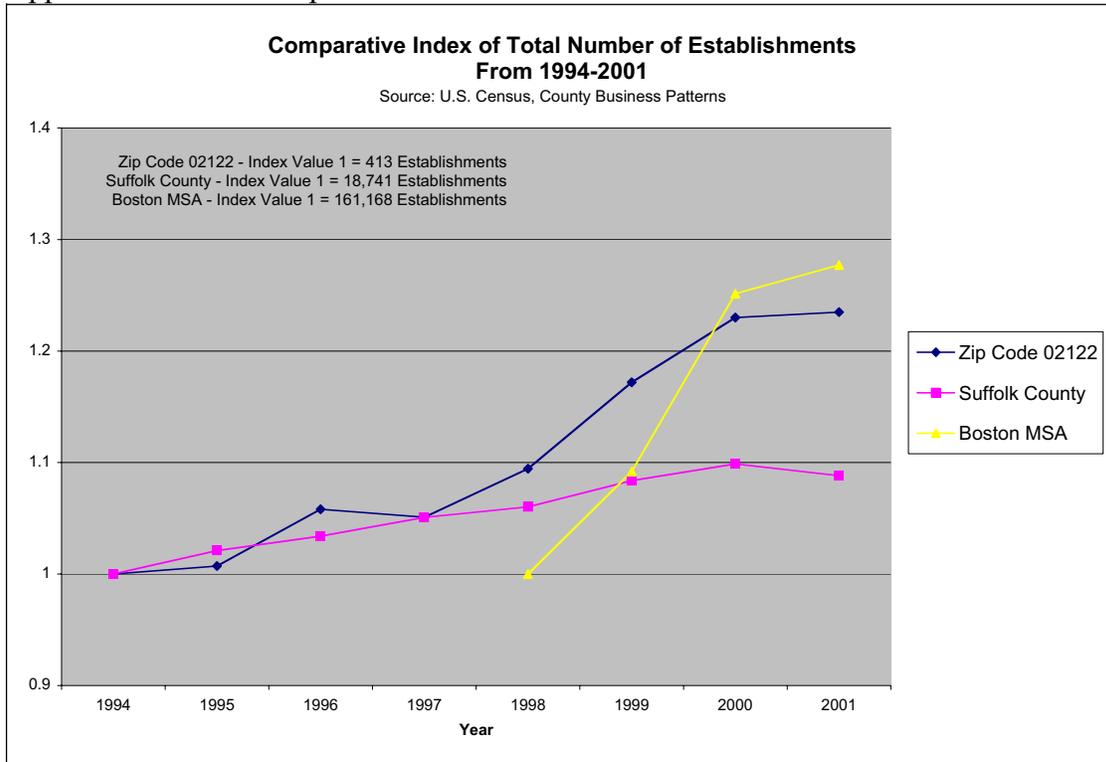
X	STEINBACHS SERVICE STA 321 ADAMS ST BOSTON (BOSTON), MA 02122 Last updated:6/86	NO	NO	YES	NO	NO
X	TECH LUBE CENTER INC 316 ADAMS ST BOSTON (DORCHESTER), MA 02122 Last updated:4/87	NO	NO	YES	NO	NO
X	TOMS AUTO BODY INC 1291 DORCHESTER AVE BOSTON (BOSTON), MA 02122 Last updated:6/85	NO	NO	YES	NO	NO
X	VANS AUTO BODY 111 FREEPORT ST BOSTON (BOSTON), MA 02122 Last updated: 5/86	NO	NO	YES	NO	NO
	VERIZON MASSACHUSETTS 175 ADAMS STREET BOSTON, MA 02122	NO	NO	YES	YES	NO

Source: EPA 2004c

A-V. Map of MBTA routes

APPENDIX C

Appendix B-I-A – Comparative Index of Total Number of Establishments



Appendix B-I-B - Number of Establishments by 2-Digit Industry Code (1994 - 1997)

INDUSTRY (SIC)	TOTAL ESTABLISHMENTS			
	1994	1995	1996	1997
SERVICES	151	↑ 155	↑ 160	156
RETAIL TRADE	121	↑ 122	↑ 123	↑ 124
CONSTRUCTION	42	↑ 43	↑ 46	43
FINANCE, INSURANCE, AND REAL ESTATE	41	40	↑ 47	44
MANUFACTURING	26	26	25	↑ 28
WHOLESALE TRADE	17	15	↑ 22	↑ 23
TRANSPORTATION AND PUBLIC UTILITIES	12	11	10	↑ 13
AGRICULTURAL SERVICES, FORESTRY, AND FISHING	2	2	1	1
UNCLASSIFIED ESTABLISHMENTS	1	↑ 2	↑ 3	2
TOTALS	413	416	437	434

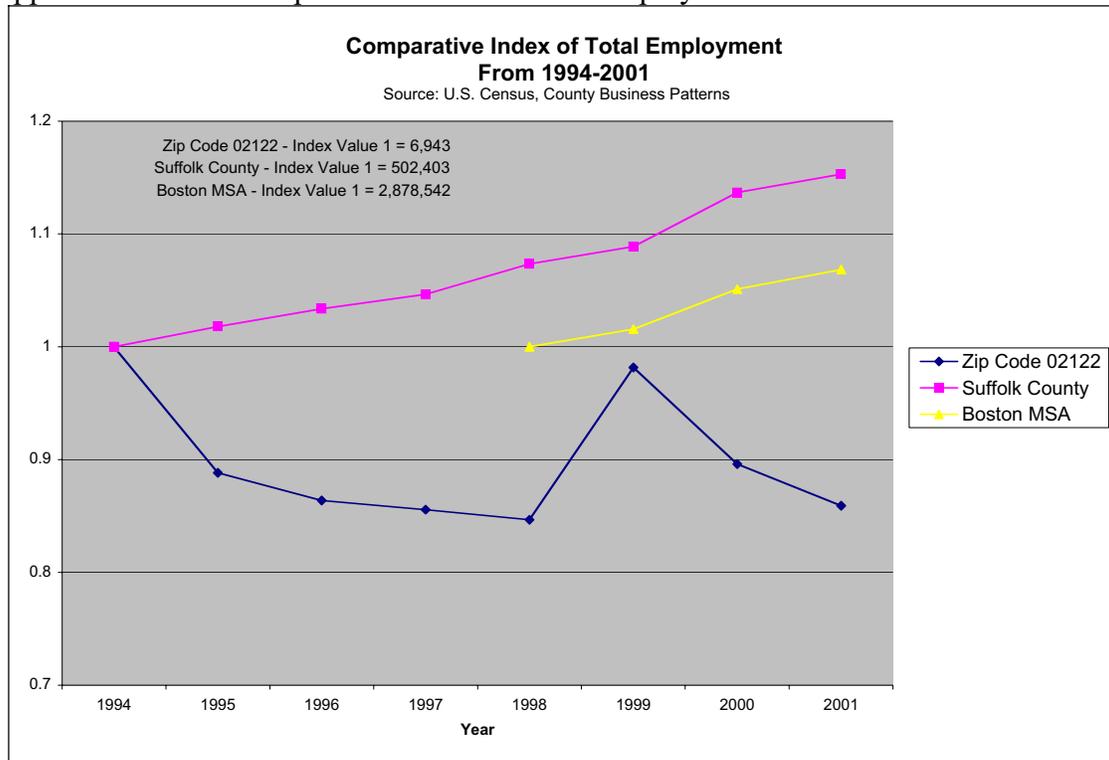
Source: U.S. Census, County Business Patterns [↑ indicate growth from previous year]

Appendix B-I-C – Number of Establishments by 2-Digit Industry Code (1998-2001)

INDUSTRY (NAIC)	TOTAL ESTABLISHMENTS			
	1998	1999	2000	2001
Retail trade	86	↑ 87	↑ 89	88
Other services (except public administration)	69	68	↑ 75	72
Accommodation & food services	50	48	50	50
Construction	44	↑ 45	↑ 48	↑ 55
Health care and social assistance	40	↑ 43	↑ 46	↑ 49
Finance & insurance	32	32	29	28
Admin, support, waste mgt, remediation srvs	29	27	↑ 32	21
Manufacturing	26	↑ 27	25	22
Professional, scientific & technical services	19	↑ 22	↑ 23	↑ 28
Wholesale trade	16	↑ 17	15	↑ 16
Real estate & rental & leasing	13	↑ 15	18	18
Transportation & warehousing	7	↑ 11	11	10
Information	5	4	5	5
Educational services	5	↑ 7	7	7
Arts, entertainment & recreation	5	5	3	3
Unclassified establishments	4	↑ 24	↑ 30	↑ 35
Management of companies & enterprises	1	1	1	1
Auxiliaries (exc corporate, subsidiary...)	1	0	0	0
Utilities	0	↑ 1	1	↑ 2
TOTALS	452	484	508	510

Source: U.S. Census, County Business Patterns [↑ indicate growth from previous year]

Appendix B-I-D – Comparative Index of Total Employment



Appendix B-I-E – Estimation of Total Employment by 2-Digit Industry Code (1994 - 1997)

INDUSTRY (SIC)	% of Employment (Estimation)			
	1994	1995	1996	1997
SERVICES	53.01%	42.29%	↑ 46.01%	40.23%
RETAIL TRADE	21.57%	↑ 26.21%	23.26%	↑ 34.95%
MANUFACTURING	13.90%	↑ 15.83%	11.09%	5.61%
FINANCE, INSURANCE, AND REAL ESTATE	3.96%	↑ 4.96%	↑ 5.57%	5.33%
CONSTRUCTION	3.29%	↑ 5.26%	↑ 7.17%	↑ 7.57%
WHOLESALE TRADE	2.69%	↑ 3.28%	↑ 4.73%	4.11%
TRANSPORTATION AND PUBLIC UTILITIES	1.43%	↑ 1.51%	↑ 1.84%	↑ 2.01%
AGRICULTURAL SERVICES, FORESTRY, AND FISHING	0.12%	↑ 0.59%	0.24%	0.12%
UNCLASSIFIED ESTABLISHMENTS	0.03%	↑ 0.06%	↑ 0.10%	0.07%
TOTAL	100.00%	100.00%	100.00%	100.00%
Actual Total Employment	6943.0	6167.0	5997.0	5940.0
Estimation of Total Employment	7819.5	6492.5	5901.5	5932.5
% Difference b/w Estimate & Actual Totals	12.62%	5.28%	-1.59%	-0.13%

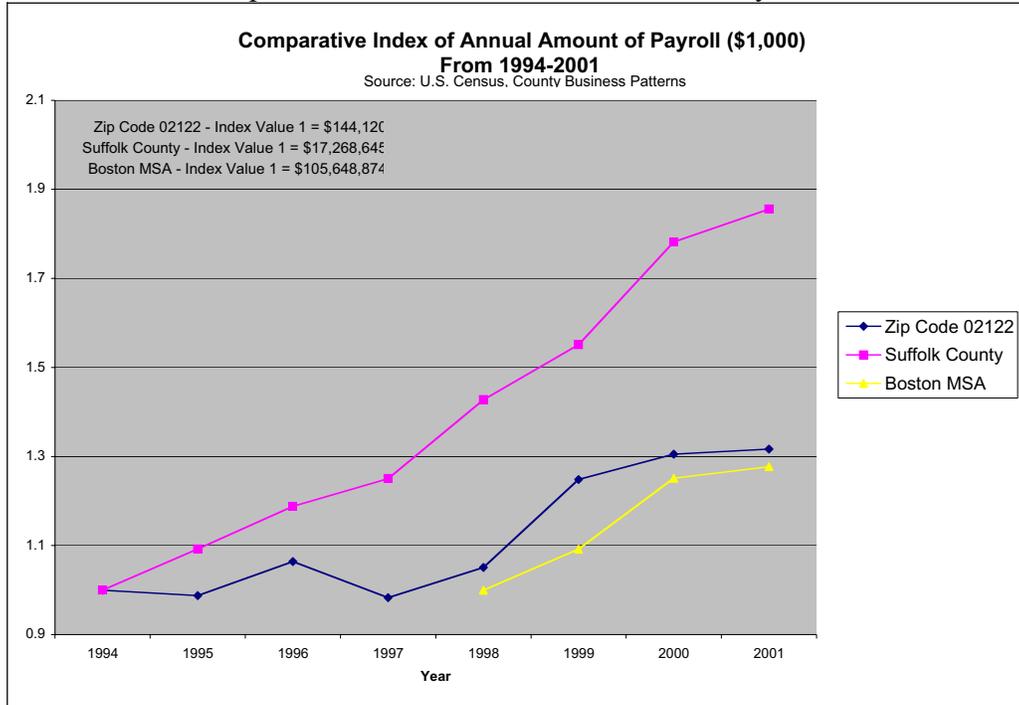
Source: U.S. Census, County Business Patterns [↑ indicate growth from previous year]

Appendix B-I-F - Estimation of Total Employment by 2-Digit Industry Code (1998-2001)

INDUSTRY (NAICS)	% of Employment (Estimation)			
	1998	1999	2000	2001
Retail trade	23.09%	↑ 24.49%	18.89%	16.58%
Health care and social assistance	18.67%	↑ 23.51%	20.14%	19.33%
Other services (except public administration)	10.99%	6.98%	↑ 8.51%	↑ 8.69%
Accommodation & food services	10.97%	9.01%	↑ 9.52%	↑ 10.77%
Construction	10.55%	8.31%	↑ 9.67%	↑ 10.94%
Manufacturing	5.64%	4.89%	↑ 4.91%	4.42%
Finance & insurance	4.04%	3.29%	↑ 4.45%	4.13%
Admin, support, waste mgt, remediation srvs	3.53%	3.02%	↑ 3.71%	2.87%
Wholesale trade	3.25%	2.38%	↑ 2.55%	↑ 3.19%
Educational services	2.47%	2.20%	↑ 3.16%	↑ 4.01%
Real estate & rental & leasing	2.11%	1.81%	↑ 3.01%	2.44%
Professional, scientific & technical services	1.36%	↑ 3.51%	↑ 3.73%	↑ 4.31%
Information	1.26%	1.06%	0.98%	↑ 1.26%
Arts, entertainment & recreation	0.84%	0.83%	0.65%	↑ 0.68%
Transportation & warehousing	0.74%	↑ 2.96%	↑ 3.69%	↑ 3.91%
Unclassified establishments	0.34%	0.71%	↑ 1.31%	1.25%
Management of companies & enterprises	0.12%	0.03%	0.03%	0.03%
Auxiliaries (exc corporate, subsidiary...)	0.03%	0.00%	0.00%	0.00%
Utilities	0.00%	↑ 1.00%	↑ 1.09%	↑ 1.17%
TOTALS	100.00%	100.00%	100.00%	100.00%
Actual Total Employment	5878.0	6815.0	6221.0	5965.0
Estimation of Total Employment	5871.5	6783.5	6254.0	5981.5
% Difference b/w Estimate & Actual Totals	0.11%	0.46%	-0.53%	-0.28%

Source: U.S. Census, County Business Patterns [↑ indicate growth from previous year]

Appendix B-I-G – Comparative Index of Annual Amount of Payroll



Appendix B-II-A – Breakdown of 6-digit NAICS industry code descriptions

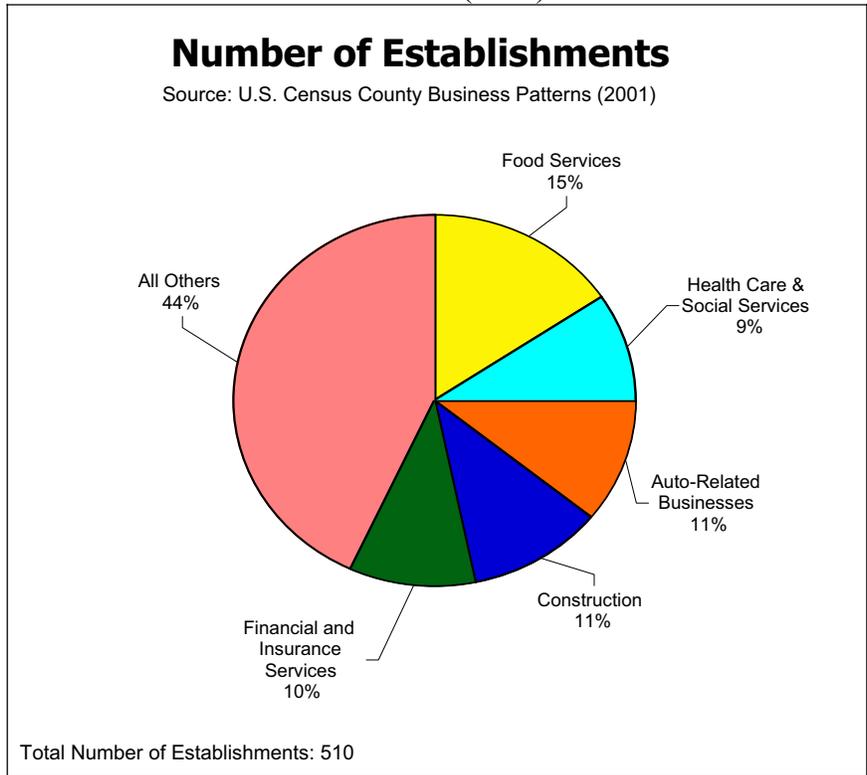
Food Services	Grocery (except convenience) stores
	Convenience stores
	Meat markets
	Fish & seafood markets
	Fruit & vegetable markets
	Baked goods stores
	Confectionery & nut stores
	Beer, wine & liquor stores
	Full-service restaurants
	Limited-service restaurants
	Snack & nonalcoholic beverage bars
	Food service contractors
	Drinking places (alcoholic beverages)

Auto-Related Businesses	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
	Electroplating, Plating, Polishing, Anodizing, and Coloring
	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing
	Motor vehicle supplies & new parts whsle
	New Car Dealers
	Used Car Dealers
	Automotive Parts and Accessories Stores
	Tire Dealers
	Gasoline Stations with Convenience Stores
	Other Gasoline Stations
	General Freight Trucking, Local
	General Freight Trucking, Long-Distance, Truckload
	Used Household and Office Goods Moving
	Specialized Freight (except Used Goods) Trucking, Local
	Limousine Service
	School and Employee Bus Transportation
	All Other Transit and Ground Passenger Transportation
	Motor Vehicle Towing
	Direct Property and Casualty Insurance Carriers
	Passenger Car Rental
	Other Commercial and Industrial Machinery and Equipment Rental and Leasing
	General Automotive Repair
	Automotive Exhaust System Repair
	Automotive Transmission Repair
	Other Automotive Mechanical and Electrical Repair and Maintenance
	Automotive Body, Paint, and Interior Repair and Maintenance
	Automotive Glass Replacement Shops
	Automotive Oil Change and Lubrication Shops
	Car Washes
	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
	Parking Lots and Garages
Construction	Single-family housing construction
	Multifamily housing construction
	Mfg & industrial building construction
	Commercial & institutional bldg construction
	Water, sewer & pipeline construction
	Power, communication transmission line construct
	All other heavy construction
	Plumbing, heating & AC contractor
	Painting & wall covering contractors
	Electrical contractors
	Masonry & stone contractors
	Drywall, acoustical & insulation contractors
	Carpentry contractors
	Floor laying & other floor contractors
	Roofing, siding, & sheet metal contractors
	Glass & glazing contractors
	Excavation contractors
Building equip & other machine installation contractors	

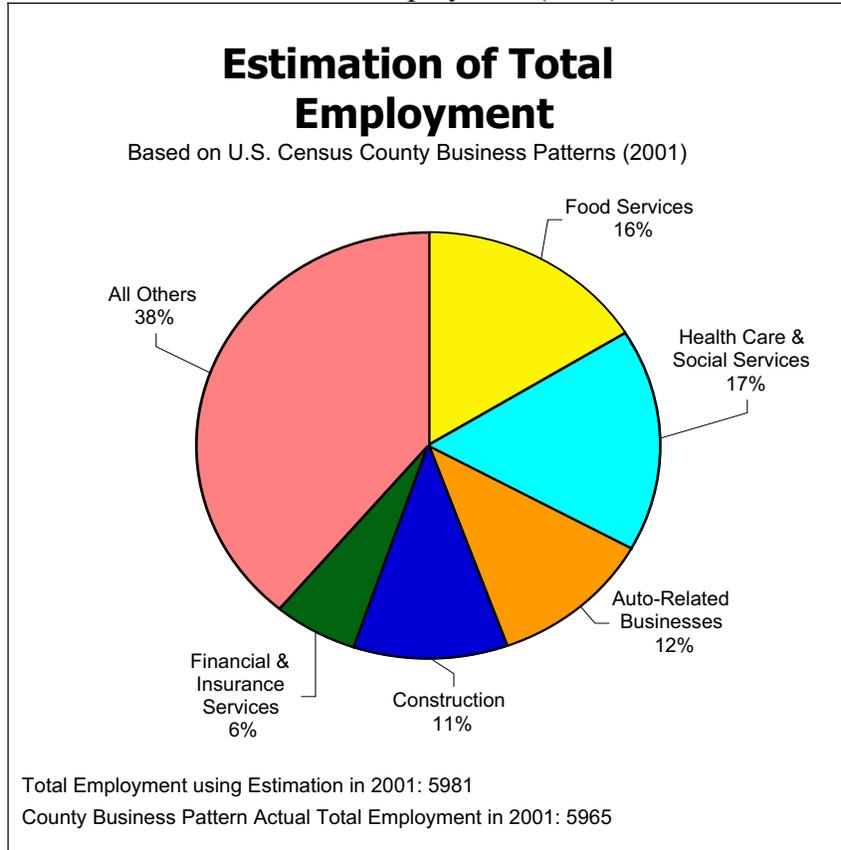
All other special trade contractors

Financial and Insurance Services	Commercial banking
	Savings institutions
	Credit unions
	Other credit intermediation activities
	Investment advice
	Direct property & casualty insurance carrier
	Insurance agencies & brokerages
	Claims adjusting
	Offices of real estate agents & brokers
	Residential property managers
	Nonresidential property managers
	Offices of real estate appraisers
	Other activities related to real estate
	Offices of lawyers
	Offices of certified public accountants
	Tax preparation services
	Other accounting services

Appendix B-II-B – Number of Establishments (2001)



Appendix B-II-C – Estimation of Total Employment (2001)



Appendix B-II-D

2001 INDUSTRY NUMBER OF ESTABLISHMENTS AND ESTIMATION OF EMPLOYMENT: Based on U.S. Census, County Business Patterns (2001)

Food Services Industry	Total Establishments	Estimation of Total Employment
Grocery (except convenience) stores	5	226.0
Convenience stores	9	47.0
Meat markets	2	9.0
Fish & seafood markets	2	9.0
Fruit & vegetable markets	1	31.5
Baked goods stores	2	33.5
Confectionery & nut stores	1	31.5
Beer, wine & liquor stores	9	35.0
Full-service restaurants	18	188.0
Limited-service restaurants	17	161.5
Snack & nonalcoholic beverage bars	3	150.0
Food service contractors	2	9.0
Drinking places (alcoholic beverages)	8	36.0
TOTAL	79	967.0

Based on U.S. Census, County Business Patterns (2001)

Health Care & Social Services Industry	Total Establishments	Estimation of Total Employment
Offices of physicians (exc mental health)	3	6.0
Offices of dentists	9	62.0
Offices of chiropractors	2	9.0
Offices of PT, OT, speech therapy & audiol	8	57.0
All other outpatient care centers	3	335.5
All other misc ambulatory health care services	1	14.0
Nursing care facilities	1	152.0
Residential mental retardation facilities	1	7.0
Residential mental health, subst abuse fac	2	9.0
Continuing care retirement communities	1	14.0
Other residential care facilities	3	21.0
Child & youth services	4	49.5
Services for elderly & disabled persons	2	166.0
Other individual & family services	3	52.5
Emergency & other relief services	1	2.0
Child day care services	4	47.5
TOTAL	48	1004.0

Based on U.S. Census, County Business Patterns (2001)

Auto Related Industry	Total Establishments	Estimation of Total Employment
Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	1	31.5
Electroplating, Plating, Polishing, Anodizing, and Coloring	2	21.0
Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	1	2.0
Motor vehicle supplies & new parts whse	1	31.5
New Car Dealers	4	140
Used Car Dealers	1	7.0
Automotive Parts and Accessories Stores	3	23.0
Tire Dealers	1	7.0
Gasoline Stations with Convenience Stores	3	16.0
Other Gasoline Stations	6	32.0
General Freight Trucking, Local	1	2.0
General Freight Trucking, Long-Distance, Truckload	0	0.0
Used Household and Office Goods Moving	0	0.0
Specialized Freight (except Used Goods) Trucking, Local	0	0.0
Limousine Service	1	2.0
School and Employee Bus Transportation	3	190.5
All Other Transit and Ground Passenger Transportation	1	2.0
Motor Vehicle Towing	1	2.0
Direct Property and Casualty Insurance Carriers	1	2.0
Passenger Car Rental	0	0.0
Other Commercial and Industrial Machinery and Equipment Rental and Leasing	0	0.0
General Automotive Repair	6	12.0
Automotive Exhaust System Repair	1	2.0
Automotive Transmission Repair	1	2.0

Other Automotive Mechanical and Electrical Repair and Maintenance	2	9.0
Automotive Body, Paint, and Interior Repair and Maintenance	7	82.5
Automotive Glass Replacement Shops	2	4.0
Automotive Oil Change and Lubrication Shops	3	30.0
Car Washes	1	14.0
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	1	7.0
Parking Lots and Garages	1	14.0
TOTAL	56	688.0

Based on U.S. Census, County Business Patterns (2001)

Financial & Insurance Services Industry	Total Establishments	Estimation of Total Employment
Commercial banking	5	80.5
Savings institutions	2	45.5
Credit unions	2	4.0
Other credit intermediation activities	2	9.0
Investment advice	1	2.0
Direct property & casualty insurance carrier	1	2.0
Insurance agencies & brokerages	13	65.5
Claims adjusting	2	38.5
Offices of real estate agents & brokers	4	20.0
Residential property managers	2	9.0
Nonresidential property managers	1	2.0
Offices of real estate appraisers	1	2.0
Other activities related to real estate	2	4.0
Offices of lawyers	9	40.0
Offices of certified public accountants	1	7.0
Tax preparation services	3	11.0
Other accounting services	1	2.0
TOTAL	52	344.0

Based on U.S. Census, County Business Patterns (2001)

Construction Industry	Total Establishments	Estimation of Total Employment
Single-family housing construction	6	22.0
Multifamily housing construction	1	14.0
Mfg & industrial building construction	1	31.5
Commercial & institutional bldg construction	5	91.0
Water, sewer & pipeline construction	1	7.0
Pwr, communication transmsn line construct	1	2.0
All other heavy construction	2	9.0
Plumbing, heating & AC contractor	5	81.0
Painting & wall covering contractors	2	16.0
Electrical contractors	12	286.5
Masonry & stone contractors	1	2.0
Drywall, acoustical & insulation contractors	1	2.0
Carpentry contractors	3	11.0
Floor laying & other floor contractors	1	14.0
Roofing, siding, & sheet metal contractors	5	15.0
Glass & glazing contractors	1	31.5
Excavation contractors	2	4.0

Bldg equip & other mach installation contractors	2	9.0
All other special trade contractors	3	6.0
TOTAL	55	654.5

Based on U.S. Census, County Business Patterns (2001)

Appendix B-III-A – Auto-Related Industry Description and Count of Establishments in Zip Code 02122

AUTO RELATED INDUSTRY	2001 Total Establishments
Automotive Body, Paint, and Interior Repair and Maintenance	7
Other Gasoline Stations	6
General Automotive Repair	6
New Car Dealers	4
Automotive Parts and Accessories Stores	3
Gasoline Stations with Convenience Stores	3
School and Employee Bus Transportation	3
Automotive Oil Change and Lubrication Shops	3
Electroplating, Plating, Polishing, Anodizing, and Coloring	2
Other Automotive Mechanical and Electrical Repair and Maintenance	2
Automotive Glass Replacement Shops	2
Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	1
Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	1
Motor vehicle supplies & new parts whsle	1
Used Car Dealers	1
Tire Dealers	1
General Freight Trucking, Local	1
Limousine Service	1
All Other Transit and Ground Passenger Transportation	1
Motor Vehicle Towing	1
Direct Property and Casualty Insurance Carriers	1
Automotive Exhaust System Repair	1
Automotive Transmission Repair	1
Car Washes	1
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	1
Parking Lots and Garages*	1
General Freight Trucking, Long-Distance, Truckload*	0
Used Household and Office Goods Moving*	0
Specialized Freight (except Used Goods) Trucking, Local*	0
Passenger Car Rental*	0
Other Commercial and Industrial Machinery and Equipment Rental and Leasing*	0
TOTAL	56

*These industries descriptions have been included despite having 0 establishments in 2001 because they were present during the years 1998, 1999, and/or 2000.

Based on U.S. Census, County Business Patterns (2001)

Appendix B-III-B – Distribution of Auto-Related Businesses by Employment Size Class

Region	Count of Auto-Related Establishments by Employment Size Class								
	Year	'1-4'	'5-9'	'10-19'	'20-49'	'50-99'	'100-249'	>249	Total
Zip Code 02122	1998	26	9	9	4	2	0	0	50
	1999	26	9	9	4	2	0	0	50
	2000	31	13	7	5	2	1	0	59
	2001	25	16	8	4	2	1	0	56

Based on U.S. Census, County Business Patterns

Appendix B-III-C – Comparison of Total Number of Auto-Related Establishments

Region	Auto-Related Establishments as a Percent of Total Establishments by Employment Size Class										
	Year	'1-4'	'5-9'	'10-19'	'20-49'	'50-99'	'100-249'	'250-499'	'500-999'	>999	Total
Zip Code 02122	1998	9.70%	8.11%	13.85%	9.30%	15.38%	0.00%	0.00%	0.00%	0.00%	9.80%
	1999	9.70%	8.11%	13.85%	9.30%	15.38%	0.00%	0.00%	0.00%	0.00%	9.80%
	2000	11.57%	11.71%	10.77%	11.63%	15.38%	10.00%	0.00%	0.00%	0.00%	11.57%
	2001	9.33%	14.41%	12.31%	9.30%	15.38%	10.00%	0.00%	0.00%	0.00%	10.98%
Boston MSA	2001	6.45%	8.17%	6.97%	5.66%	5.66%	3.61%	1.56%	1.75%	1.43%	6.64%

Based on U.S. Census, County Business Patterns

Appendix B-III-D – Comparison of Total Estimated Employment in Auto-Related Industry

Region	Year	Total Estimated Employment in Auto-Related Businesses	Auto-Related Employment as a Percent of Total Employment
Zip Code 02122	1998	503.0	8.57%
	1999	503.0	7.42%
	2000	696.5	11.14%
	2001	688.0	11.50%
Boston MSA	2001	130,840.5	4.51%

Based on U.S. Census, County Business Patterns

Appendix B-III-E – Wage Structure in the Auto-Related Industry [National]

Industry	Employment	Hourly mean wage	Annual mean wage
Automotive repair and maintenance	238,620	\$13.75	\$28,610
Automobile dealers	227,570	\$18.43	\$38,330
Auto parts, accessories, and tire stores	54,320	\$13.75	\$28,610
Gasoline stations	29,490	\$14.21	\$29,560

Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wages, 2002 – Automotive Service Technicians and Mechanics (search by Automotive Service Technicians and Mechanics, national)

Appendix B-III-F – Wage Structure in the Auto-Related Industry [Boston MA-NH MSA]

Occupation Title	Employment	Wage Estimates			
		Median Hourly	Mean Hourly	Mean Annual	Mean Relative Standard Error
Automotive Body and Related Repairers	2,200	\$16.27	\$18.06	\$37,550	8.0 %
Automotive Glass Installers and Repairers	[?]	\$12.68	\$12.99	\$27,030	9.9 %
Automotive Service Technicians and Mechanics	10,230	\$18.05	\$17.48	\$36,360	3.6 %
Tire Repairers and Changers	950	\$10.74	\$12.18	\$25,330	3.0 %
Service Station Attendants	2,270	\$8.35	\$9.19	\$19,110	4.8 %
Truck Drivers, Heavy and Tractor-Trailer	12,480	\$18.48	\$18.73	\$38,950	1.3 %
Truck Drivers, Light Or Delivery Services	11,700	\$13.72	\$14.58	\$30,320	1.9 %

Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wages, 2001 – Boston, MA-NH PMSA (search by occupation title)

Appendix B-III-G – Auto-Related Industries with Environmental Considerations

INDUSTRY DESCRIPTION	Total Establishments by Employment Size Class				
	'1-4'	'5-9'	'10-19'	'20-49'	TOTAL
Automotive Body, Paint, Interior Repair & Maintenance	1	3	2	1	7
General Automotive Repair	6	0	0	0	6
Automotive Oil Change & Lubrication Shops	1	0	2	0	3
Other Automotive Mechanical and Electrical Repair & Maintenance	1	1	0	0	2
Automotive Glass Replacement Shops	2	0	0	0	2
Car Washes	0	0	1	0	1
Commercial & Industrial Machinery & Equip. (exc. Automotive & Electronic) Repair & Maintenance	0	1	0	0	1
Automotive Exhaust System Repair	1	0	0	0	1
Automotive Transmission Repair	1	0	0	0	1

Based on U.S. Census, County Business Patterns (2001)

Appendix B-III-H – Resources on Best Pollution Prevention Practices relating to Auto-Related Businesses

Resource	Website
MA Office of Technical Assistance	Crash Course for Compliance and Pollution Prevention http://www.state.ma.us/ota/support/crash.htm
Peaks to Prairie	Auto Body Shops Pollution Prevention Guide http://peakstoprairies.org/p2bande/autobody/abguide/index.cfm
Coordinating Committee for Automotive Repair	Auto Service Virtual Shop – an interactive web-manual http://www.ccar-greenlink.org/
Ohio EPA	Automotive Repair Facilities – Pollution Prevention Fact Sheet http://www.epa.state.oh.us/opp/fact35.html
Pollution Prevention (P2) Resources	Links to pollution prevention websites http://www.p2gems.org/

APPENDIX D

Appendix C-I—business inventory of Fields Corner (143 establishments)

NAME	EMP_SIZE	SALES	SQUARE_FOOTAGE
FIELDS CORNER AUTO GLASS	500 to 999	\$100 to \$500 MILLION	40,000+
SAVANA HEALTH CARE	50 to 99	\$5 to \$10 MILLION	2,500 - 9,999
NEW ENGLAND WHOLESALE GLASS	10 to 19	\$2.5 to \$5 MILLION	2,500 - 9,999
FLEET BANK	10 to 19	\$2.5 to \$5 MILLION	2,500 - 9,999
GSL MORTGAGE CO	5 to 9	\$1 to \$2.5 MILLION	2,500 - 9,999
AUTOZONE	5 to 9	\$1 to \$2.5 MILLION	2,500 - 9,999
COUNTYWIDE MORTGAGE	5 to 9	\$1 to \$2.5 MILLION	2,500 - 9,999
STORE 24 INC	5 to 9	\$1 to \$2.5 MILLION	2,500 - 9,999
LAPPEN'S DISCOUNT AUTO PARTS	10 to 19	\$1 to \$2.5 MILLION	2,500 - 9,999
CELLULAR & PAGING OF BOSTON	5 to 9	\$1 to \$2.5 MILLION	10,000 - 39,999
J BAKER REMOVAL DEMOLITION	5 to 9	\$1 to \$2.5 MILLION	2,500 - 9,999
BOSTON BLUESTONE	10 to 19	\$1 to \$2.5 MILLION	10,000 - 39,999
FREEMPORT MARBLE & GRANITE	10 to 19	\$1 to \$2.5 MILLION	10,000 - 39,999
MC CARTHY & MC CARTHY LAW OFC	5 to 9	\$1 to \$2.5 MILLION	0 - 2,499
RADIO SHACK	5 to 9	\$1 to \$2.5 MILLION	2,500 - 9,999
H LEVENBUAM INSURANCE	10 to 19	\$1 to \$2.5 MILLION	2,500 - 9,999
CENTURY 21	10 to 19	\$1 to \$2.5 MILLION	2,500 - 9,999
J B SELECTIVE DEMOLITION CO	5 to 9	\$500,000 to \$1 MILLION	2,500 - 9,999
NATIONAL CAMP ASSN INC	10 to 19	\$500,000 to \$1 MILLION	10,000 - 39,999
HORIZON REALTY	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
NORTH QUINCY PLATE GLASS DIV	1 to 4	\$500,000 to \$1 MILLION	2,500 - 9,999
JONEZ FINANCIAL GROUP	1 to 4	\$500,000 to \$1 MILLION	2,500 - 9,999
PROGRESSIVE FINANCIAL SVC	1 to 4	\$500,000 to \$1 MILLION	2,500 - 9,999
GUARANTEED ROOFING SVC	5 to 9	\$500,000 to \$1 MILLION	10,000 - 39,999
KIMMY PHARMACY	1 to 4	\$500,000 to \$1 MILLION	10,000 - 39,999
NGUYEN & ASSOC PC	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
PHUNG PORZIO STUDIO-ARCHITECT	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
DOMINO'S PIZZA	10 to 19	\$500,000 to \$1 MILLION	2,500 - 9,999
FAMILY DENTAL CARE	5 to 9	\$500,000 to \$1 MILLION	0 - 2,499
HOANG, NHUAN HUU MD	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
SMOKE SHOP & MORE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
AVENUE REALTY	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
THAI, AN MD	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
DREAMS HOUSE OF FASHIONS	5 to 9	\$500,000 to \$1 MILLION	10,000 - 39,999
KARLENE A VALENTE INSURANCE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499

KELLY BEAUTY SUPPLY	1 to 4	\$500,000 to \$1 MILLION	2,500 - 9,999
FIELDS CORNER PHYSICAL THERAPY	10 to 19	\$500,000 to \$1 MILLION	2,500 - 9,999
VINA INSURANCE INC	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
FINNERTY INSURANCE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
CITY REAL ESTATE & BUS BROKERS	5 to 9	\$500,000 to \$1 MILLION	0 - 2,499
PICASSO'S FURNITURE & APPLS	1 to 4	\$500,000 to \$1 MILLION	10,000 - 39,999
LISA B MEDEIROS LAW OFFICE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
RUTSTEIN INSURANCE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
MC CALL TRANSPORTATION	5 to 9	\$500,000 to \$1 MILLION	10,000 - 39,999
PARKWAY PHYSICAL THERAPY	5 to 9	\$500,000 to \$1 MILLION	0 - 2,499
NGUYEN NGOC THAI LAW OFFICE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
ROSA'S LIQUOR STORE	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
NANINA'S ITALIAN RESTAURANT	10 to 19	\$500,000 to \$1 MILLION	2,500 - 9,999
PHO HOA RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
FIELDS CORNER SNOW PLOWING	1 to 4	LESS THAN \$500,000	2,500 - 9,999
EXCEL PROPERTIES INC	1 to 4	LESS THAN \$500,000	0 - 2,499
BILL'S MUFFLER SHOP	1 to 4	LESS THAN \$500,000	2,500 - 9,999
NEW ENGLAND AUTO & BOAT CARE	1 to 4	LESS THAN \$500,000	0 - 2,499
P & J BAIT SHOP	1 to 4	LESS THAN \$500,000	0 - 2,499
D V CAM PHOTO & VIDEO	1 to 4	LESS THAN \$500,000	0 - 2,499
T H PHYSICAL THERAPY	5 to 9	LESS THAN \$500,000	0 - 2,499
TIME TRADER ANTIQUES	1 to 4	LESS THAN \$500,000	0 - 2,499
VINH'S TV REPAIR	1 to 4	LESS THAN \$500,000	0 - 2,499
THANH DANH MULTI SVC	1 to 4	LESS THAN \$500,000	0 - 2,499
METROPOLITAN DENTAL CTR	1 to 4	LESS THAN \$500,000	0 - 2,499
HIEP LOI GIFT SHOP & VIDEO	1 to 4	LESS THAN \$500,000	2,500 - 9,999
QUI KIM COSMETICS	1 to 4	LESS THAN \$500,000	0 - 2,499
NGUYEN, NGHI	1 to 4	LESS THAN \$500,000	0 - 2,499
UNITED CELLULAR & PAGING	1 to 4	LESS THAN \$500,000	0 - 2,499
PHO 2000 RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
COMZER INSURANCE BROKERAGE	1 to 4	LESS THAN \$500,000	0 - 2,499
SHIN, FRANK DDS	1 to 4	LESS THAN \$500,000	0 - 2,499
CALI FOR NAILS ACADEMY	1 to 4	LESS THAN \$500,000	10,000 - 39,999
HOANG MY JEWELRY	1 to 4	LESS THAN \$500,000	0 - 2,499
NGUYEN, STEVEN	1 to 4	LESS THAN \$500,000	2,500 - 9,999
NHATRANG VIDEO	1 to 4	LESS THAN \$500,000	2,500 - 9,999
REDLINE REALTY	1 to 4	LESS THAN \$500,000	0 - 2,499
MAYS RESTAURANT	10 to 19	LESS THAN \$500,000	2,500 - 9,999
PHIL'S BARBER SHOP	1 to 4	LESS THAN \$500,000	0 - 2,499
VIEN DONG VIDEO & GIFTS	1 to 4	LESS THAN \$500,000	2,500 - 9,999
FIELDS CORNER CHIROPRACTIC	1 to 4	LESS THAN \$500,000	0 - 2,499
NARE AFRICAN HAIR BRAIDING	1 to 4	LESS THAN \$500,000	0 - 2,499

ATLANTIC TRAVEL AGENCY	5 to 9	LESS THAN \$500,000	0 - 2,499
B B STATE TEMPS	5 to 9	LESS THAN \$500,000	10,000 - 39,999
FAMILY DENTAL CARE	1 to 4	LESS THAN \$500,000	0 - 2,499
HALFHIDE II, GERALD	1 to 4	LESS THAN \$500,000	0 - 2,499
JOHN L DIAZ LAW OFFICES	1 to 4	LESS THAN \$500,000	0 - 2,499
KIM-MAI BEAUTY SALON	1 to 4	LESS THAN \$500,000	0 - 2,499
PHO SO 1 BOSTON	1 to 4	LESS THAN \$500,000	0 - 2,499
CLARK & ASSOC	1 to 4	LESS THAN \$500,000	0 - 2,499
HANH'S BRIDAL SHOP	1 to 4	LESS THAN \$500,000	0 - 2,499
SIGNATURE FASHION MARIE ALBERT	1 to 4	LESS THAN \$500,000	2,500 - 9,999
BA LE BAKERY	5 to 9	LESS THAN \$500,000	0 - 2,499
EAST COAST RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
TAN PHAT	5 to 9	LESS THAN \$500,000	0 - 2,499
DAVID'S HARDWOOD FLOORS	1 to 4	LESS THAN \$500,000	2,500 - 9,999
BEAUTY CASTLE	1 to 4	LESS THAN \$500,000	0 - 2,499
FIELD CORNER	1 to 4	LESS THAN \$500,000	0 - 2,499
MY XUYEN GIFT SHOP	1 to 4	LESS THAN \$500,000	2,500 - 9,999
VALNETE, KARLENE A	1 to 4	LESS THAN \$500,000	0 - 2,499
M & NAIL	1 to 4	LESS THAN \$500,000	0 - 2,499
STRUCTURE BEAUTY SALON	5 to 9	LESS THAN \$500,000	0 - 2,499
ADAMS DENTAL CARE	1 to 4	LESS THAN \$500,000	0 - 2,499
ART STUDIO	1 to 4	LESS THAN \$500,000	0 - 2,499
FIELDS CORNER BAKERY	1 to 4	LESS THAN \$500,000	0 - 2,499
JINNY'S BOUTIQUE	1 to 4	LESS THAN \$500,000	0 - 2,499
BOSTON FISH MARKET	1 to 4	LESS THAN \$500,000	0 - 2,499
BOSTON GUN & RIFLE ASSOC INC	1 to 4	LESS THAN \$500,000	0 - 2,499
HIEU VUONG RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
KIM MARKET	1 to 4	LESS THAN \$500,000	0 - 2,499
LENOX ONE HOUR CLEANERS	1 to 4	LESS THAN \$500,000	0 - 2,499
NEW ENGLAND FIREARMS TRAINING	1 to 4	LESS THAN \$500,000	0 - 2,499
TAX MAN	5 to 9	LESS THAN \$500,000	0 - 2,499
ACORN	5 to 9	LESS THAN \$500,000	0 - 2,499
STEREO ELECTRONICS	1 to 4	LESS THAN \$500,000	0 - 2,499
THAO BEAUTY SALON	1 to 4	LESS THAN \$500,000	0 - 2,499
YUM YUM RESTAURANT INC	5 to 9	LESS THAN \$500,000	0 - 2,499
BLARNEY STONE BAR INC	1 to 4	LESS THAN \$500,000	0 - 2,499
EMERALD ISLE BAR	5 to 9	LESS THAN \$500,000	2,500 - 9,999
MY TIEN	1 to 4	LESS THAN \$500,000	2,500 - 9,999
HI-FI PIZZA PIE	5 to 9	LESS THAN \$500,000	2,500 - 9,999
NGHIEM, FRANK T M DDS	1 to 4	LESS THAN \$500,000	0 - 2,499
NGHIEM, JUDY DDS	1 to 4	LESS THAN \$500,000	0 - 2,499
BARGAIN CITY	1 to 4	LESS THAN \$500,000	0 - 2,499
YOUR DESTINY TWO	1 to 4	LESS THAN \$500,000	0 - 2,499
MAGIC WOK	5 to 9	LESS THAN \$500,000	2,500 - 9,999
MC DONALD'S	10 to 19	LESS THAN \$500,000	2,500 - 9,999
D V PRINTING	1 to 4	LESS THAN \$500,000	2,500 - 9,999
D V TRAVEL	1 to 4	LESS THAN \$500,000	0 - 2,499
CORNER NAIL	1 to 4	LESS THAN \$500,000	0 - 2,499
COMPLETE REHAB INC	5 to 9	LESS THAN \$500,000	10,000 - 39,999
KIM DZUNG BEAUTY SALON	1 to 4	LESS THAN \$500,000	0 - 2,499
PARKVIEW INN	1 to 4	LESS THAN \$500,000	2,500 - 9,999
NHA SACH SAI GON			2,500 - 9,999
US POST OFFICE	20 to 49		10,000 - 39,999

CITIZENS BANK	5 to 9	2,500 - 9,999
BOSTON POLICE COMMUNITY SVC	20 to 49	10,000 - 39,999
VIETNAMESE AMERICAN INITIATIVE	5 to 9	2,500 - 9,999
VIETNAMESE AMERICAN CIVIC	20 to 49	2,500 - 9,999
PEACE INSTITUTE	1 to 4	2,500 - 9,999
ST AMBROSE	1 to 4	2,500 - 9,999
MICKEY'S PLACE INC		2,500 - 9,999
LIVING WAGE RESOURCE CTR	1 to 4	0 - 2,499
KIT CLARK SENIOR SVC	20 to 49	2,500 - 9,999
DORCHESTER YOUTH COLLABORATIVE	10 to 19	10,000 - 39,999
FIELDS CORNER LIBRARY	5 to 9	10,000 - 39,999
DORCHESTER YOUTH ACADEMY	1 to 4	10,000 - 39,999
ALL DORCHESTER SPORTS LEAGUE	1 to 4	2,500 - 9,999

Sources: U.S. references (2004)

Appendix C-II—Vietnamese owned business inventory of Fields Corner (36 establishments)

NAME	EMP_SIZE	SALES	SQUARE_FOOTAGE
KIMMY PHARMACY	1 to 4	\$500,000 to \$1 MILLION	10,000 - 39,999
HOANG, NHUAN HUU MD	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
THAI, AN MD	1 to 4	\$500,000 to \$1 MILLION	0 - 2,499
PARKWAY PHYSICAL THERAPY	5 to 9	\$500,000 to \$1 MILLION	0 - 2,499
THANH DANH MULTI SVC	1 to 4	LESS THAN \$500,000	0 - 2,499
PHO HOA RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
D V CAM PHOTO & VIDEO	1 to 4	LESS THAN \$500,000	0 - 2,499
CALI FOR NAILS ACADEMY	1 to 4	LESS THAN \$500,000	10,000 - 39,999
HOANG MY JEWELRY	1 to 4	LESS THAN \$500,000	0 - 2,499
HIEP LOI GIFT SHOP & VIDEO	1 to 4	LESS THAN \$500,000	2,500 - 9,999
KIM-MAI BEAUTY SALON	1 to 4	LESS THAN \$500,000	0 - 2,499
NHATRANG VIDEO	1 to 4	LESS THAN \$500,000	2,500 - 9,999
PHO 2000 RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
QUI KIM COSMETICS	1 to 4	LESS THAN \$500,000	0 - 2,499
UNITED CELLULAR & PAGING	1 to 4	LESS THAN \$500,000	0 - 2,499
B B STATE TEMPS	5 to 9	LESS THAN \$500,000	10,000 - 39,999
BEAUTY CASTLE	1 to 4	LESS THAN \$500,000	0 - 2,499
MY XUYEN GIFT SHOP	1 to 4	LESS THAN \$500,000	2,500 - 9,999
PHO SO 1 BOSTON	1 to 4	LESS THAN \$500,000	0 - 2,499
STEREO ELECTRONICS	1 to 4	LESS THAN \$500,000	0 - 2,499
THAO BEAUTY SALON	1 to 4	LESS THAN \$500,000	0 - 2,499
HIEN VUONG RESTAURANT	1 to 4	LESS THAN \$500,000	0 - 2,499
KIM MARKET	1 to 4	LESS THAN \$500,000	0 - 2,499
NGHIEM, FRANK T M DDS	1 to 4	LESS THAN \$500,000	0 - 2,499
NGHIEM, JUDY DDS	1 to 4	LESS THAN \$500,000	0 - 2,499
CORNER NAIL	1 to 4	LESS THAN \$500,000	0 - 2,499
KIM DZUNG BEAUTY SALON	1 to 4	LESS THAN \$500,000	0 - 2,499
HOP SING'S			
HOP TRINH MD			
V D TRAVEL			
ASIAN AMERICAN ELECTRIC INC			
LUCA SIGN			
ABC FINANCIAL NETWORK LTD			
HOATO VIETNAM CONNECT			
T N COMPLETE AUTO REPAIR			
NHA SACH SAI GON			2,500 - 9,999

Sources: U.S. references (2004)